The Journal

OF THE

American Medical Association

117

Edited for the Association Under the Direction of the Board of Trustees by

GEORGE H. SIMMONS, M.D., LL.D.

VOLUME LXIX : : JULY—DECEMBER, 1917

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Hypothyroidism and Optic Atrophy—The possibility of hypothyroidism producing optic neuritis terminating in atrophy is indicated by the occurr- is 20, 9 and 8 5 consecutive atrophy in two brothers and a sist- fedema occur th other members of the family had generaly is presen - of hypothyroidism in a case report
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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXIX, No 1 | Chicago, Illinois | July

THE EYE AND THE ENDOCRINE ORGANS*

WILLIAM ZENTMAYER MD
PHILADELPHIA

Few subjects have claimed more of the attention of the research worker, the internist and the anatomist in the past decade than the function, anatomy, pathology and interrelation of the ductless glands. As a result, our knowledge of these matters has been greatly increased and the literature has now reached voluminous proportions.

The increasing interest in these organs by the ophthalmologist is well shown by the fact that since I began collating the literature for this address two other essayists have anticipated me. In January of this year there appeared an admirable summary of *the established facts in the* relation between the internal secretions and the eye by the late Dr Schirmer, and a less comprehensive article by Lisser in September, *1916, from both of* which I have freely drawn.

It is my purpose to bring to your attention not only facts but also what is still within the domain of speculation, *hoping thereby* to stimulate research to determine the value of such theories. I shall consider the subject from the aspects of experimental and indirect evidence, clinical evidence, toxic effects from the internal administration of the glands, indirect pathologic relation, suggestive etiology, and therapeutic uses of the glands in diseases of the eye.

EXPERIMENTAL AND INDIRECT EVIDENCE

The close topographic relation of the parathyroids to the thyroid and sympathetic nerves makes it difficult both in human surgery and in animal experimentation in operating on one structure to keep the other inviolate, and it is therefore difficult to decide in what relative degree the involvement of these structures is responsible for the resulting symptoms.

Thyroid Gland—Gley and Rochon Duvigneaud

lateral rotation experiments on dogs, that in some of the thyroid gland the ding at times to ose

Following complete excision of the thyroid nutrition of parathyroids, in several instances Edmunds apparently encountered keratitis resembling syphilitic interstitial con- keratitis, in some cases unilateral and in circles, in the central but as its occurrence was usually asso of the associated tetany leading to death he believes it we Nystagmus cases have been bilateral had the animal lived nce of an result of a similar operation this author s o and con cataract develop. Coats, who examined the question, was of the opinion that it was undoubted that it was degenerative changes connected with the ref Arrington the thyroids and the convulsions which follows of it.

While Edmunds believes that the altered r keeping of the thyroid and parathyroids, produced ed with interference with the nerve supply, is more immo mplete nutrition of the cornea than the toxins produced the complete removal of the glands, de Quervain te convinced that tetany thyropriva, as produced mentally in animals, is the result of a toxem the ligh entire nervous system, especially the brain, an synchronously due neither to injury to the neighboring tis and in the neck nor to the operation per se observa-

In tetany thyropriva, Falta and Kahn found symp- of the ciliary muscle and hypersecretion oid extract,

Parathyroids—There is some experim by Birch- to indicate that disturbed function of tl that ganglion alone can cause cataract. While the rophy may fol- Erdheim showing that in parathyroi ns strange that mals there is a diminished calcification nore and a hyperplasia of the enam leads to fracture of the teeth, and Voegtlein, Leopold and von Reusz, nges a decrease in the lime secretion a f the the bone salts, do not have a dir ing ebral lished relationship between the f phenom. The eye, they do direct one's thought , the eyebrows are ing of these findings on the sym re sparse and brittle and friability of the bones may occur. Other

The view of Jeandelize that enopia, neuroretinitis orders of man (convulsions of al contraction of the eclampsia) are due to -

together with the exp oculocardiac reflex in six strengthen the assur ia and found it enormously of is observed in normal persons

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In man, in the presence of paralysis of the
ic, the conjunctival instillation of epinephrin
mydriasis From observation of the con-
of epinephrin in daily practice for a num-
irs Santos-Fernandez finds that it only infre-
oduces mydriasis According to Nieden,
use of epinephrin diminishes lacrimal secre-
we are all familiar with the contraction of
ls which results
a 1 per cent solution of epinephrin is instilled
conjunctival sac of animals deprived of the
and, epithelial bodies or thyroid gland, the
dilated in all, but with this difference
thymus has been extirpated, it occurs
apse of weeks, whereas after extirpa-
scar
yroid it occurs within a few hours In
Philip Ma nce of pancreatic lesions, repeated instilla-
W T Sare dilatation of the pupil In exophthalmic
H Bert During the administration of thyroid extract
of the pupil may occur when epinephrin is
A B Co to the eye This is due probably to the
irritability of the sympathetic
Alexand
James E ng to Bayer, the contradictory observations
H A Bl ects of epinephrin on intra-ocular tension
Randolph brought to agreement by the studies of
Alexan which have shown that when epinephrin of
y applied strength is instilled into the normal
COUNC es no fluctuation of the tension, while in the
W S Rous eye this is very marked First there is
H M B on, then an increase, and finally a decrease
Milton matous eyes it must therefore be used with
Frank B
Walter
Frederic *Gland*—There is no evidence to show that
of the secretion of this body is capable of
any disturbance of the functions of the eye,
H D at all likely that the ocular symptoms asso-
H Gidd th teratomas of this organ are due to other
ire exerted on neighboring structures
ient interest to note that the epiphysis
words of Lord, "a rudimentary struc-
ally the representation of the median
PRACTICE OF he animals" This is also the view
urgh Vice Chairman
McLester, Empire ys it is not correct to speak of the
ERY, GENER or even any part of it still exist-
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ry, Eugene of a median eye or as a vestigial
orge P M
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Brooke M Campbell found, in cysts of the
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DISEASES OF CHILDREN reased intracranial tension,
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PHARMACOLOGY AND THERAPEU he dist A Bisted func-New
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pituitaria" are attributed to degenerative changes in the lumbar spinal cord due to the action of pituitary secretion, and comments that if this be admitted, a similar influence on the optic fibers is just as likely, and he prophesies that the time will come when certain cases of optic atrophy will be found to be of hypophysial etiology

CLINICAL EVIDENCE

Time does not permit, nor would it be appropriate on this occasion, to give a careful analysis of the many eye symptoms and their variations dependent on the nature and extent of the disease of the pituitary body, yet we cannot be contented with their mere enumeration According to de Schweinitz, one of the earliest ocular symptoms is "antecedent amblyopia" a form of blurred vision which antedates by a long period of time the objectively determinable amblyopia or any failure to read normally the ordinary test types, although the patient is conscious of a definite mist often in the central area It may be unilateral and is probably by no means constant Cushing and Parsons have also observed this symptom

Visual Field Defects—Coming now to the more definite phenomena, I shall first consider the visual field defects As is well known, the typical field defect is a bitemporal hemianopsia, which is present in at least 40 per cent of all cases, but we should give great weight to the assertion of Cushing that homonymous hemianopsia is by no means uncommon According to Uhthoff, however, in the absence of acromegaly it is very rare The development of the heteronymous defect from a superior temporal slant of the peripheral field, and the precedence of a hemichromatopsia are always to be borne in mind As has been pointed out by several authors, notably by Weeks, Cushing and Evans, and emphasized by de Schweinitz, the boundary line between the seeing and the blind fields is not usually regular or vertical, and as Wilbrand and Sanger assert, there is probably always a preservation of the macula, but in some cases it is so limited as to be overlooked in the field taking

While the frequency with which scotomas are present has been probably underestimated, yet, as will later be brought out, the very fact of their occurrence has doubtless led to mistakes in diagnosis De Schweinitz and Holloway have classified these scotomas thus 1 Small and paracentral with the possibility of their expanding into complete hemianopsia 2 An absolute or relative defect up and out, forming a quadrant 3 Scotomas varying in size and position with a possibility of their disappearing 4 Large paracentral absolute scotomas in the outer halves of the visual fields 5 Temporal field scotomas at some distance from fixation, manifested at some considerable time before the entire field is obliterated 6 An antecedent amblyopia prior to the develo PROCTOLOGY—C ral scotoma
Chairman, Alois B Graham, Ind
amblyopia Soper, 316 Wall Bldg, S Louis Mo

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ce was restored

Cre In this condition, which has , ntile or juvenile myxedema, besides the conditio enumerated, there is a wide spacing of the eyes njunctivitis which is sometimes present has been tributed by Hitschmann to the interference with rainage, the result of the saddle bridge

In both of the foregoing conditions it has been noted hat the mydriatic effect of homatropin and similar lrugs persists beyond the usual time

Mongolian Idiocy—Because of a slight outward resemblance with the foregoing two affections and because of the improvement resulting from the use of extract, some modern clinicians suspect a thy- n for the Mongolian type of idiocy, in which ymptoms of epicanthus and convergence of pebral fissures have originated the terminology this affection

Papilledema Due to Thyroidectomy—Krauss has eported a case of papilledema in a man, aged 23, coming on after thyroidectomy and first observed eight weeks after the operation Although the parathyroids had been carefully avoided, the operation was followed by a toxemia inducing tetany Central vision was about normal and the fields showed partial color reversal with peripheral transient scotomas, but the distinctive feature was said to be the slight cutting of the form field with abnormally large color fields There were prodromal attacks of absolute blindness immediately after the operation The retinal edema extended from the peripapillary region along the course of the vessels

Cataract Following Thyroidectomy—After thyroidectomy in a woman, in which the operation was followed by tetany, Westphal saw double cataract going W rity in five years, and Schiller observed bilat- H act develop within six months after partial oval of a goiter in which the operation was fol- ed by tetany

The occurrence of tetany in all of these cases suggests an insult to the parathyroids as the probable essential factor in the postoperative symptoms

The influence of the parathyroids in the causation of senile cataract has engaged the attention of Fischer and Triebenstein and also of Heschler, but the conflicting evidence prevents definite conclusions at this time The former claim to have found signs of latent tetany in 82 per cent of sixty-eight patients with senile cataract, whereas in control patients of the same age the percentage of tetany was less than 20 Heschler, however, found but 2 per cent of tetany in fifty cases of presenile and senile cataract

THYMUS GLAND

Garre found that in 95 per cent of fatal cases of exophthalmic goiter there was a persistent hyperplastic thymus An interesting case showing the influence of persistent thymus on the production of the symptoms of exophthalmic goiter is that of von Haberer Notwithstanding that the patient had had part of the thyroid removed and the thyroid artery going to the remaining thyroid tissue ligated, his condition became desperate Removal of a fragment of the thymus produced an amazing improvement with a return to the normal both subjectively and objectively, in three months' time

Hyperthyroidism from Use of

Standish writing in 1916, found recorded in literature eight cases of retrobulbar optic neuritis due to the ingestion of thyroid extract, and added three cases, one of acute development, of his own The ophthalmoscopic appearances varied from the normal to a slight papilledema, turgid veins and retinal hemorrhages Of the eleven patients, seven were females, three males, and in one the sex was not stated The preponderance of the female sex is to be attributed to the fact that thyroid extract is one of the ingredients of many of the proprietary remedies for obesity

SUGGESTIVE ETIOLOGY

There are many conditions of obscure etiology exhibiting changes which have been ascribed to altered metabolism, autotoxemia and abiotrophy In view of this as our knowledge of the function of the ductless glands enlarges, many are suspecting that a fault in one or more of these, reacting on the others, may be the cause of some of these conditions

Hereditary Optic Nerve Atrophy—In support of his contention that Leber's disease is primarily due to an inherited temporary disorder of the pituitary body, J H Fisher brings forward the following facts that Leber noticed a great tendency for the visual defects, to appear at or about the age of puberty and that evidence of a neuropathic type was afforded by such symptoms as headache, vertigo, tremors, numbness of all the limbs, or even epileptic fits, that in several reported cases there were similar symmetrical field defects, that patients with Leber's disease, as also those with rapidly developing pituitary body growths, often complain of subjective phenomena of light and colors often as "seen through a blue mist," that variation in the degree of central amblyopia which occurred in Leber's disease is more consistent with an outside influence on the visual pathways than with primary changes in the nerve fibers, that in both conditions there is an epochal relation between the onset and the period of puberty and the climacteric and that in both, frequently in early stages of the disease, a very mild papillitis can be detected In one of two affected children of a family, roentgenoscopy of the skull was negative, while the other showed a cellular or honeycombed shadow in the depression of the sella turcica That similar changes were not found in the two cases he attributes to the fact that the negative finding was in a case of two years' standing As the visual symptoms in Leber's disease are progressive up to a certain point and then come to rest, he argues that if the lesion which gives rise to these symptoms is due to some disorder of the pituitary body it also must needs be temporary and transient He also makes the practical suggestion that cases of tobacco amblyopia with glycosuria be subjected to a more thorough critical investigation than we are accustomed to give them because of cases that are on record in which Leber's disease was complicated by glycosuria Climenko, however, in two cases of Leber's disease failed to find symptoms pointing to disturbed internal secretion

Hypothyroidism and Optic Atrophy.—The possibility of hypothyroidism producing optic neuritis terminating in atrophy is indicated by the occurrence of consecutive atrophy in two brothers and a sister who with other members of the family had general symptoms of hypothyroidism in a case reported by Van Lint and Kiesfeld. The visual fields showed peripheral contraction without scotoma. The roentgenograms revealed no lesions of the sella turcica.

Ocular Syndrome of Disturbance of the Internal Secretions.—Lamb describes a syndrome which he believes to be the initial group of ocular symptoms dependent on disturbance of the internal secretions. They are dilated and unequal pupils responding promptly to light and accommodation, eye ache, severe headache, chorioretinitis affecting more markedly the macula region and worse in the eye with the more dilated pupil. This is associated with a low grade ciliary congestion also in the eye with the larger pupil usually the left one. Lacrimation and dryness of the conjunctiva may be present. There is a marked tendency to exophthalmos. The majority of these symptoms Lamb would explain by supposing an oversensitization of the tissues by the thyroid hypersecretion appearing in the blood and in the presence of epinephrin producing a very definite excitation of the sympathetic nerve endings or "plates of Langley." The exophthalmos, insufficiency of convergence, asthenopia and ciliary congestion are due to fatigue following overstimulation. The chorioretinitis may be due to some direct effect of epinephrin on the pigment cells or the result of exposure because of dilatation of the pupil over a long period of time or to both.

Pigmentary Degeneration of the Retina.—Jones sees in many of the symptoms, general as well as ocular of pigmentary degeneration of the retina, indication of disturbance of the ductless glands as an etiologic factor. Therapeutic measures based on this assumption have yielded him good results.

Osteitis Deformans.—The failure to find a causative factor for Paget's disease and because the pathology indicates a disturbance of metabolism which brings about the changes in the bones which resemble, clinically and experimentally those encountered in disturbances of the ductless glands, have led to the belief on the part of some that the cause will be proved to be due to perverted action of these glands. The only records of ocular findings in this disease available are those of Copez, who found in four cases pin point yellowish-white spots, presumably degenerative, in the retina, in two cases retinal hemorrhages, and in one, diplopia from displacement of the pulley of the superior oblique muscle.

Amaurotic Family Idiocy.—The myasthenia, the periodic convulsions, the fact that a toxemia which has usually been assumed to be the cause of Sach's disease can scarcely be a direct one because the disease is familial, and finally that lesions have been found in the suprarenals by Church, in the thymus by McKee, and that in one case Gordon found enlargement of the thyroid and in another atrophy, and that the symptoms of the disease are similar to those arising from epinephrin insufficiency have led Sajous to the belief that this disease is produced by a toxin which provokes organic lesions in the ductless glands, particularly in the most vulnerable of these, the suprarenals, when there is in these a congenital vulnerability which inhibits their power to sustain metabolism and nutrition of the [illegible] adrenalin [illegible]

[illegible]

Secondary Hypernephroma [illegible] *body.*—An [illegible] and the eye of interest [illegible] in the case reported by C[illegible] of [illegible] nephroma of the [illegible] primary tumor developed from a [illegible] the left kidney. The [illegible] elsewhere than in the eye.

Noteworthy [illegible] attention to a case of epithelial tumor of the ciliary body reported by Schlipp and described by the latter as an unusual form of endothelioma [illegible] probably one of ciliary hypernephroma.

Keratoconus.—Based on the Abderhalden dialysis method von Hippel found disturbance of metabolism of the internal secretory gland in two typical cases of keratoconus and in a corneal condition closely allied to it. The thymus was found involved in all three, and in one solely. In two the suprarenals gave a strong positive reaction. In one the thyroid gave a negative reaction in one a doubtful reaction and in one a weakly positive reaction.

GLANDULAR THERAPY

Glandular therapy has its justification in an attempt to meet two indications—a deficient or altered glandular secretion and a profound inanition due to disturbed metabolism in the absence of any direct evidence of disease of the ductless glands.

In combating the ocular manifestation of disorders of the hypophysis pituitary extract of either or both portions of the gland and thyroid extract have been employed apparently with success.

The following brief summary is taken from de Schweinitz's report of cases of pituitary body disease and the results of treatment. 1. Tumor of the pituitary body, complete blindness lasting twelve days in the right eye and six weeks in the left, complete restoration of the vision of the left eye under the influence of large doses of thyroid extract associated with inunctions of mercury. 2. Moderate choked disk with complete blindness of the right eye lasting one week, and partial blindness of the left eye with loss of the nasal field, complete restoration of the visual functions under the influence of the administration of thyroid extract associated with inunctions of mercury.

The same author jointly with Holloway reports an interesting case of atrophic pallor of the optic nerves with paracentral scotoma in the right eye and later bitemporal hemianopsia with marked impairment of central vision marked enlargement of the pituitary fossa with deepening of the pituitary pit and decided thinning of the posterior clinoids. After three weeks' administration of anterior lobe extract and thyroid extract, decided improvement in vision resulted. Later, vision of the right eye steadily improved, and that of the left steadily declined over a period of seven months. At the end of two and one half years, visual acuity equaled 6/6 and the fields were normal in each eye. During that period the patient consumed 2,100 tablets of 2½ grains each of thyroid extract and extract of the anterior lobe of the pituitary body.

Elsberg and King record a case of dyspituitarism with glandular insufficiency and cyst formation in which there were bitemporal hemianopsia, great impairment of central vision and pallid disks. One year later the field had changed to right homonymous hemianopsia, but subsequent to a decompression operation again became heteronymous Four months' treatment with pituitary extract resulted in marked enlargement of both fields in the nasal area

Tumme's case was also one of dyspituitarism with limitation of the visual fields, failure of central vision and pallor of the optic disks Under the use of thyroid extract alternating daily with whole gland pituitary extract, fields and visual acuity were normal two years later

A convincing case of the value of organotherapy is that of Clothier and Devitt, quoted by Reber A man, aged 39, *had bitemporal hemianopsia and hyperpituitarism* with enlargement of the pituitary body as determined by the Roentgen ray Under the administration of thyroid and pituitary gland, in four months there was reestablishment of full form and color fields After an interval of two years of nontreatment, incomplete vertical hemianopsia in the right eye, and arked contraction of form and color in the left eye ere present After twelve months of the glandular eatment, vision and fields returned to normal In this case, the administration of either gland alone was without result

The employment of organotherapy in the treatment of hyperthyroidism is of questionable justification, although there are those who assert that in the later stages of the disease the onset of symptoms of myxedema is an indication for the use of thyroid extract Risley lends the weight of his authority to the use of thyroid extract in the treatment of interstitial keratitis in subjects whose insanition and mental turpitude indicate a lowered metabolism He argues that the drug does good by improving the action of the thyroid gland, whose secretion has been diminished by the general lowered vitality

In the treatment of a condition to which he gives the name "malignant uveitis," Bordley has employed thyroid extract with brilliant results In all, eight cases were treated, four with marked success, two doubtful and two failures He does not wish to infer from this that this disease is necessarily a symptom of cretinism or myxedema

Muncaster has *found thyroid extract in combination* with epinephrin and sodium cacodylate of benefit in cases of pigmentary degeneration of the retina and in old pigment deposits in the fundus

More recently, Jones has suggested organotherapy in pigmentary degeneration of the retina

Phillips reports favorable results from the transplantation of epithelial bodies in the treatment of cataract

Along with the general symptoms of cretinism and myxedema the ocular lesions also undergo improvement with thyroid feeding

The local use of epinephrin for congestion of the conjunctival and ciliary vessels is no longer promiscuous and its employment in glaucoma is of doubtful value Its use for the prevention and control of corneal staphyloma is recommended by Pontius It is of material assistance in the prevention and control of bleeding in ophthalmic surgery

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A Popular Diet Error—The popular idea that "most people eat too much," which one hears expressed in common table talk, is not true People who do not change in weight eat just enough to maintain the condition in which they have established themselves They may, however, lose their surplus fatty tissue by restricting their diet—Graham Lusk in *Science*

TREATMENT OF INTESTINAL AMEBIASIS

WITH SPECIAL REFERENCE TO IPECAC AND ITS DERIVATIVES *

B C CROWELL, M D
Professor of Pathology and Bacteriology, and Director, Graduate School of Tropical Medicine and Public Health, University of the Philippines, College of Medicine and Surgery
MANILA, P I

Dysentery is a symptom of intestinal disease, and there are a large number of agents that may produce the intestinal disorders which lead to this symptom Before the discovery of the various etiologic agents which may cause dysentery, its treatment was purely empiric and symptomatic It was in this stage of our knowledge that ipecac was introduced as a form of treatment, and it was administered indiscriminately in all forms of dysentery

The differentiation of etiologic types of dysentery has led to appropriate forms of treatment, and any discussion of the treatment of this disease must take *into consideration the causative agents, and known facts concerning those agents* Therefore, I have prepared a brief summary of certain points in the history of our knowledge of amebas, as it is the treatment of the disease they produce that I wish to discuss

In 1875, Losch,[1] in a case of dysentery, described an organism which he called *Amoeba coli* He reproduced the disease in dogs by injecting them with recently passed stools from this patient His conclusion was that the *Amoeba coli* was not the primary cause of the disease, but that it was certainly capable of increasing a lesion of the large intestine already present, or at least of preventing its healing Following this, numerous observers found the amebas in the stools and associated them with dysentery In 1885, Kartulis,[2] from a study of over 500 cases, propounded the theory that typical dysentery was caused by amebas, as were also the liver abscesses that often accompany it He found the amebas regularly in the stools of dysenteric patients, in ulcers of the large intestine, and in pus from liver abscesses, and he infected cats by rectal injection of dysenteric stools Opposition to the theory of Kartulis was based on the rare finding of amebas in some places in which dysentery was endemic, and on finding them in various kinds of intestinal diseases and in healthy subjects

The question now was to decide if there was a specific amebic colitis, and whether or not there are several species of intestinal amebas In 1891, Councilman and Lafleur[3] did much able work on dysentery, and as a result of their work the question of the existence of a specific amebic colitis was settled These authors renamed *Amoeba coli* Losch as *Amoeba dysenteriae* In 1893, Kruse and Pasquale[4] retained the old name *Amoeba coli* Losch for the noninfectious species In the same year Quincke and Roos[5] set forth three species, and Celli and Fiocca[6] (1894-1896) distinguished five

The genus *Endamoeba* was created by Leidy[7] in 1879, and the name applied to amebas not known to be found in the human host. This generic term was applied by Casagrandi and Barbagallo[8] to those amebas found in the human intestine. In 1903, Schaudinn[9] designated the species pathogenic for man as *E. histolytica* and the nonpathogenic species as *E. coli*.

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* Read before the Manila Medical Society, April 2, 1917

[1] Lösch Virchows Arch f path Anat, 1875, **65** 196

[2] Kartulis Virchows Arch f path Anat, 1886, **105**, 521

[3] Councilman and Lafleur Johns Hopkins Hosp Rep, 1891, **2**, 395

[4] Kruse and Pasquale Deutsch med Wchnschr, 1893, **19**, 354 378

[5] Quincke and Roos Berl klin Wchnschr, 1893, **30**, 1089

[6] Celli and Fiocca Centralbl f Bakteriol Part I 1895 **17**, 309

[7] Leidy Proc Acad Nat Sc, Philadelphia, 1879, **31**, 204

From this time on many species of endamebas have been described, many with small excuse, and now the pendulum appears to be again swinging in the direction of reduction in the number of species. More than twenty species of endamebas have been described by different authors as occurring in the human host. At the present time, at any rate, it is universally conceded that *E. histolytica* is pathogenic and causes dysentery. The position of *E. coli* is not quite so certain. Regarded by many as harmless commensal in the human intestine, by others its lack of pathogenicity is not conceded. The latter class of workers find it difficult to reconcile its alleged nonpathogenicity with the fact that they see cases of dysentery in which only *E. coli* can be found. Furthermore they draw attention to the well known fact that protozoa are subject to very marked alterations as the result of changes in environment, and assert that it is at least conceivable that an ameba which under certain conditions is harmless may become pathogenic when those conditions are altered in certain ways.

The bearing of this protozoal study on the treatment of dysentery is apparent. It may be mentioned that meanwhile it has been shown that many other causes of dysentery may be differentiated, each type requiring appropriate treatment. In 1898 Shiga[10] showed that one of the types of dysentery was due to a bacillus. Other types of dysentery bacilli have since been described and probably more will be. The role of the tubercle bacillus, the spirochete, *Balantidium*, *Schistosoma*, *Opisthorchis*, *Clonorchis*, *Trichomonas*, *Lamblia*, and other parasites need only be mentioned to draw attention to the multiplicity of the causes of dysentery.

IMPORTANT QUESTIONS IN INTESTINAL AMEBIASIS

To confine our diagnosis, however, to intestinal amebiasis, aside from the question of pathogenicity and nonpathogenicity of species, other questions have assumed importance. Among these may be mentioned the occurrence of ameba carriers and the difficulty in distinguishing species.

Carriers.—As in diseases due to other causes, it has been found that endamebas may be present in stools of persons who have no dysenteric symptoms. Some of these persons have previously had attacks of dysentery, and others have never had acute attacks. This class of cases is subject to attacks or relapses, and to extension of the amebic process from the intestine to other parts of the body, especially to the liver. These persons also constitute a source of contamination for others.

Low,[11] in commenting on a case of amebic abscess of the liver occurring twenty years after the original attack of dysentery, says:

> Much attention has recently been bestowed, and rightly so, upon the danger of chronic amebic carriers spreading infection to others. This case is a very striking example of the danger of the carrier to himself, and brings forward once more the necessity of properly treating such cases. It is therefore of the utmost importance that all people who have had dysentery, even though it may have occurred years before, should have their stools thoroughly examined on several occasions to make certain that they are not amebic carriers; if they are found to be so, they should at once be treated in order to obviate the danger of a subsequent abscess in the liver.

Importance of Species Pathogenicity in Treatment.—One may readily find endamebas and may be able to differentiate the species. All physicians will treat *E. histolytica* cases. The question is still an open one as to whether all *E. coli* cases should be treated. On this point it seems only rational that an attempt should first be made to find other causes for the dysentery, and failing this, if the patient is dysenteric, treatment should be instituted regardless of the protozoologist's opinion of *E. coli*. More difficult is that class of cases in which *E. coli* is detected only in routine examinations of a person not suffering from dysentery. In that case it seems that the development of the earliest signs of intestinal disorder should call for treatment.

It must be remembered that constipation and intestinal endamebiasis may occur together.

Periodicity of Appearance of Endamebas.—Still further, it should be borne in mind that even in cases of severe dysentery the endamebas may be present in the dejecta only at intervals, and thus several examinations at varying intervals may be necessary before the organisms are found. Incidentally, ignorance of this fact has led to much unjust criticism of the laboratory worker. In all protozoan infections, great care must be exercised in claiming good effects from the administration of drugs, in view of the fact of their well known periodicity and spontaneous disappearance. Every worker who follows his cases carefully with microscopic examinations becomes more and more chary of claiming good effects from the result of drugs. Recently Dobell and Low[12] have clearly shown the necessity of this by the daily examination of the feces of a patient with intestinal lambliasis for a period of 100 consecutive days. They found that on thirty-eight days out of the hundred, *Lamblia* was discovered in the stools. On the other sixty-two days none could be found, and the negative days were in sequence for as long as ten days at a time. This is only one concrete example of the principle that careful investigators frequently see exemplified.

TREATMENT WITH IPECAC AND ITS DERIVATIVES

Treatment of intestinal amebiasis should be undertaken with a knowledge of the facts just set forth.

As stated above, ipecac was formerly advocated for dysentery, irrespective of the cause. The Brazilian root was apparently first taken to Europe by Piso in 1658, where it was successfully used by Helvetius in the treatment of Louis XIV, and was sold as a secret remedy to the French government. Two centuries later, Docker introduced the use of large doses (60 grains two or three times a day) of powdered ipecacuanha in the treatment of severe dysentery in Mauritius. His excellent results were confirmed by others. In 1886, Maclean and Chevers advocated the use of ipecac in acute hepatitis. Later the drug fell into more or less disrepute, but its use has been revived as a result of Manson's advocacy of its employment in dysentery and Rogers' in hepatitis.

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[8] Casagrandi and Barbagallo Ann d' ig sper 1897 **7**, 103

[9] Schaudinn Arb a d k Gsndhtsamte 1903, **20**, 547

[10] Shiga Centralbl f Bakteriol, Part 1 1898 **23**, 599 **24**, 817 870 913

[11] Low George C Brit Med Jour 1916 **2**, 868

[12] Dobell and Low Lancet London 1916 **191** 1053

Meanwhile, many other substances have been used in the treatment of dysentery, among which may be mentioned quinin, bismuth, tannin, salines, opium, thymol, salts of silver, mercury and arsenic, including salvarsan These drugs have been introduced by all routes, orally, by rectum, hypodermically, intramuscularly, intravenously, and through colostomy wounds Each one of these drugs has accomplished good in some cases, but no one is good for all

The chief interest in the treatment of amebiasis has centered around the use of ipecac and its derivatives, and it is with this phase of the subject that I wish to deal in this paper This drug is commonly regarded as a specific for amebic dysentery The drawbacks to its use in man have been, first, its emetic action and, second, the fact that dysentery does not always respond to the administration of the drug, in however large doses it may be given

The drug contains five alkaloids, of which emetin and cephaelin are the chief According to Ross,[13] emetin was first separated from ipecacuanha by Pelletier and Magendie in 1817, and was first recommended for dysentery by Bardsley of Manchester in 1829, while Tull and Walsh gave it by mouth in 1891

In 1912, Vedder[14] reported in Hongkong before the Far Eastern Medical Association on the experimental action of ipecac on amebas, and there showed that emetin killed amebas in a dilution of 1 100,000 From this work he concluded that ipecac was a powerful amebacide, and he suggested that this action of the ipecac was due to emetin This work of Vedder's was carried on in Manila

Following up this experimental work, Sir Leonard Rogers[15] in India tried the hypodermic administration of emetin in the treatment of amebic disease and reported what he referred to as "strikingly good results" Referring to his success in his earlier cases, he says

> Should further results fulfil the great hopes raised by the success above recorded, it will be difficult to exaggerate the boon which will be conferred on the numerous sufferers from the intractable and deadly amebic form of dysentery and its various hepatic complications

A later article by Rogers[16] in the same year says that he believed his hopes to have been justified The drug has been used in the form of the hydrochlorid administered hypodermically and intramuscularly

Since that time, the literature has teemed with reports of successes and failures in the treatment of intestinal amebiasis by this drug The British became especially enthusiastic in the support of the drug Locally in Manila there are many who have failed to obtain desirable results following the administration of emetin, although the patients were frequently benefited symptomatically, and the amebas have disappeared for a time Recurrences and relapses, however, have unfortunately been common Within the last two years especially, the number of people decrying the use of emetin as the result of unfortunate recurrences after its use has been constantly increasing

A new method of treatment which promises more favorable results has been looked forward to Apparparently this has been partially realized DuMez,[16] in 1915, published formulas of two drugs which he suggested might be of value in the treatment of amebiasis These preparations were devised by DuMez especially for the purpose of treatment of this disease, hoping to obtain a drug which could be given by mouth, which would be efficacious, and which would not have the drawbacks ascribed to previous forms of treatment of the disease These salts were emetin mercuric iodid and emetin bismuthous iodid

As a result of his experiments on dogs, DuMez says that these two compounds may be given in doses representing 0 03 gm of emetin hydrochlorid without causing vomiting and without any apparent nausea The latter of these preparations alone has commanded attention

TABLE 1—DUMEZ FORMULAS

EMETIN MERCURIC IODID	
Iodin	43 08 per cent.
Mercury	12 50 per cent
Hydrogen (as hydrogen iodid)	0 23 per cent
Emetin	44 19 per cent.
EMETIN BISMUTHOUS IODID	
Iodin	58 26 per cent
Bismuth	12 36 per cent
Hydrogen (as hydrogen iodid)	0 30 per cent
Emetin	29 08 per cent

It has the useful property of being practically insoluble in dilute acids but soluble with comparative ease in weak alkali It might be expected, therefore, to pass the stomach unaltered, and then being dissolved in the alkaline juices of the duodenum, to undergo decomposition as it passed along the bowel with liberation of emetin and precipitation of bismuth sulphid No serious attention was paid to this suggestion, as far as I can find out, until Dale,[17] in July, 1916, reported on its use He tried it in ten cases, with good results in eight In one case relapse occurred after two full courses of the drug, and in one case treatment could not be continued, owing to the vomiting and diarrhea which it caused He is enthusiastic over the use of the drug He states that trouble occurred in some cases from vomiting, but this was easily overcome in most instances The vomiting is delayed and the comfort of the patient is affected more than the efficiency of the treatment From 32 to 36 grains, equivalent to about 10 or 12 grains of emetin hydrochlorid, he regarded as a full course, and the daily dose was varied from 2 to 4 grains given in capsules He says the frequency of vomiting is in no way comparable with that seen with the ipecac treatment, and there is no need as a rule to restrict diet, to keep the patient recumbent, or to adopt the precautionary measures which the ipecac treatment entails Dale considers the expense of the drug a serious drawback to its widespread use

Later, Low and Dobell[18] published a report of three cases of *Endamoeba histolytica* infection treated with emetin bismuth iodid in which they obtained good results, but the period of time during which the cases were observed after treatment and before the report was made was too brief to justify far reaching conclusions One was a case of acute amebic dysentery, one a case of a convalescent carrier of long standing, and one a contact carrier case These three cases remained negative during the time that they were kept under observation These authors also refer to the unpleasant effects on the patient, but say that the result obtained from their cases has convinced them that emetin bismuth iodid is far more efficacious than emetin hydrochlorid given hypodermically in removing the cysts from the feces of chronic carriers Conservatively they state that in their opinion "it should henceforward be generally employed in such cases, at all events until a more ideal treatment is forthcoming "

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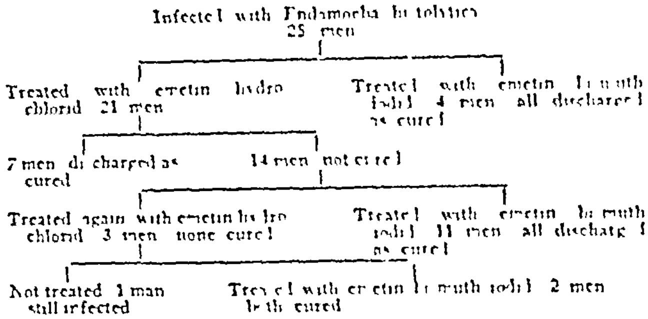
[13] Ross Lancet, London, 1916, **190**, 1
[14] Vedder Tr Far East Med Assn, Hongkong, 1912
[15] Rogers, Leonard Brit Med Jour, 1912, **1**, 1424, **2**, 405, 828
[16] DuMez Philippine Jour Sc, Sec B, 1915 **10** 73
[17] Dale Lancet London, 1916, **191**, 183
[18] Low and Dobell Lancet, London 1916, **101**, 319

Still later Dobell[19] gave an exhaustive report on his study of the use of the drug in intestinal amebiasis He treated seventeen cases of *E. histolytica* infection with emetin bismuth iodid and his results are shown in Tables 2 and 3

TABLE 2—TREATMENT OF TWENTY-FIVE PATIENTS WITH EMETIN HYDROCHLORID AND WITH EMETIN BISMUTH IODID


Infected with Endameba histolytica 25 men
Treated with emetin hydrochlorid 21 men
Treated with emetin bismuth iodid 4 men all discharged as cured
7 men discharged as cured
14 men not cured
Treated again with emetin hydrochlorid 3 men none cured
Treated with emetin bismuth iodid 11 men all discharged as cured
Not treated 1 man still infected
Treated with emetin bismuth iodid 2 men both cured

It must be mentioned in explanation of Table 3 that twenty-one days was adopted as an arbitrary limit, and cases which remained negative for this interval or longer after treatment were designated as "certain" cures The effects of the administration of the double iodid on the protozoal contents of the stools are reported as truly remarkable Within four days of the commencement of treatment, all traces of the *E. histolytica* whether amebas or cysts, had completely disappeared from the feces and in no single instance have they been subsequently found Many of the men treated with the double iodid were infected with *E coli*, *Lamblia* and *Chilomastix* and in no case did the treatment remove any of these protozoa *E coli* disappears from the feces during treatment but almost invariably reappears afterward

As regards ameba carriers Low says "Fortunately we now possess in emetin bismuth iodid a drug which sterilizes chronic cyst carriers with a certainty not attained by any previous methods" In a footnote he adds "It is essential, however, that the drug be given as the powder in a gelatin capsule, and not in any compressed form Since writing this paper I have had a case in which 'stearettes' of it were passed in the feces absolutely unchanged, and the same may take place with keratin-coated tabloids"

TABLE 3—COMPARATIVE RESULTS WITH EMETIN HYDROCHLORID AND WITH EMETIN BISMUTH IODID

	Treated with Emetin Hydrochlorid	Treated with Emetin Bismuth Iodid
Total number of treatments	24	17
Number of certain cures	5	9
Number of uncertain cures	2	8
Number of relapses	17	0

Imrie and Roche[20] treated six cases of *E histolytica* infection, in four of which the patients had had dysentery Four had previously received emetin hydrochlorid, but still passed endamebas Forty-eight hours after institution of treatment with emetin bismuthous iodid endamebas disappeared and in no case did they reappear while under observation, periods varying from fourteen to thirty-two days The drug was administered in doses of 3 grains on twelve successive nights Note that he says "*Dale* has introduced a compound of emetin and bismuth iodid for oral administration"

REPORTS ON EMETIN

The following are abstracts from articles which have appeared dealing with emetin from the standpoints of its mode of action, its toxicity, its pharmacology and its therapeutic action

Jepps[21] reports on the use of emetin hydrochlorid administered hypodermically in twenty-one cases of amebic infections (chronic cases and carriers) He found that after the injection of at least 10 grains of emetin hydrochlorid 57 per cent were not permanently free from *E histolytica* In these cases relapses after the end of treatment occurred at intervals from the fifth to the twentieth day

Levy and Rowntree[22] investigated the toxicity of various commercial preparations of emetin hydrochlorid and concluded that the administration of emetin hydrochlorid is not regarded as a harmless procedure Individualization by close clinical observation is essential both for the success and safety of the treatment The treatment should be given in courses, at intervals of several days or a week The subcutaneous route is the one of choice Individual dosage and the duration of each course must be determined by the exigencies of the case One third grain three times a day for a week or ten days is usually a safe dosage in amebic infections It is rarely necessary to give more than 1½ grains daily Intravenous injections should be employed only in extreme cases If this mode of administration seems imperative small doses, well diluted (½ grain in 100 c c salt solution) should be slowly given and blood pressure should be carefully observed during the injection

Lyons,[23] in 1915, investigated the mode of action and use of emetin in endamebiasis, and concluded that ipecac and emetin when taken by needle or by mouth act through absorption into the blood stream and exert their specific effect only on those endamebas within reach of the circulation, that is, in the tissues Relapses are due to the survival of some of the endamebas probably through encystment In the carrier state the endamebas are probably simply harbored in the lumen of the intestine in the same manner as the coli, thereby causing no symptoms The intestinal mucosa is in some way protected against the penetration of the organism In order to prevent relapses, an intermittent form of treatment should be instituted in every case, even though cysts are not found

Ross[13] says that he thinks the hypodermic use of emetin brings the drug more directly into contact with the amebas at the bottom of the ulcers, while the ipecacuanha by mouth does more to attack amebas on the surface of the mucous membrane and in the lumen of the intestine, so that he is inclined to favor the use of both at the proper stages in the treatment He also favors the use of bismuth, the treatment elaborated by Deeks in Panama and consisting of a heaped teaspoonful of the subnitrate three or four times a day The utility of this is supposed to depend not only on the

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[19] Dobell Brit Med. Jour 1916 **2**, 612

[20] Imrie and Roche Lancet London 1917 **192**, 17

[21] Jepps Brit. Med Jour, 1916, **2**, 616

[22] Levy R L and Rowntree L G The Toxicity of Various Commercial Preparations of Emetin Hydrochlorid Arch Int Med March 1916 p 420

[23] Lyons Am Jour Med Sc. 1915 **150**, 97

Alcohol lends itself to either purpose. Is it a wonder that it is popular?

As an analgesic alcohol deserves to be ranked alongside of opiates and cocain. It is particularly potent for the relief of gastric, intestinal and uterine colic. A narcotic dose of it will relieve any pain. On the other hand no one will deny that it is a habit-producing drug just like opium and cocain. This being the case why should it not be included among the drugs covered by the Harrison law? In the number of victims alcohol vastly outranks all other narcotics. The Harrison act as it now stands, catches the petty thief and permits the robber chief uncontrolled devastation. Were the people adequately protected against its seductive qualities alcohol might be a safer drug to use medicinally. While alcohol relieves pains it cures none, excepting when used by injection into the nerve in trifacial neuralgia for which purpose it now has a well established place. On the other hand it must be ranked high as a cause of pain, for it is the single most common etiologic factor in neuritis.

The chief trouble with liquor is that it depresses and eventually paralyzes inhibition. A man may start out to take one drink and wind up dead drunk. What is still worse on long continued use of alcohol, the faculties, at first temporarily abolished become lost forever so that the chronic alcoholic becomes progressively less able to control himself. It is this loss of self-control that makes inebriety so hard to cure. For of what avail are promises, vows and pledges, when no power is left to execute them? The man who takes pride in the notion that he can drink or leave drink alone just as he choses, should test himself by suddenly cutting out drink. He will probably be shocked at the hold the craving for liquor has on him. Fortunate is he who has will power enough left to resist the craving. Such a one merely had the alcohol habit, and he had better give it up while there is yet a chance, for he who does not will become progressively less and less able to resist and may finally become an incurable drunkard as a degenerative condition of the brain will have developed recovery from which may be impossible. This is the way in which liquor strews the paths of life with wrecks of what were once men. It is possible for some to drink moderately during a long lifetime, but no one can tell whether or not he is one of these. As Forel says "Moderate drinking is the nursery of inebriety."

How illusive the effects of alcohol are is well shown by its action on body temperature. It makes one feel warm, while at the same time it lowers body temperature, for it dilates the blood vessels of the skin, and we are accustomed to judge our body temperatures by the amount of blood in the skin. It at the same time benumbs the heat-regulating center. This is the reason why the highest as well as the lowest recorded temperatures in human beings have occurred under the influence of alcohol. Freezing to death most commonly takes place in intoxicated persons. Sunstroke is generally sustained from the combined effect of liquor, hard labor and strong sunshine. It is evident that alcohol should not be taken before one goes out into the cold. After exposure to cold, when one is in a warm room, it may help one to warm up more quickly. That is what its use in the breaking up of a "cold" amounts to. Of course, it is not a cure for "colds" as is popularly supposed by the laity.

Alcohol is not a true stimulant to the circulation. Its chief effect here is to change the distribution of the blood by producing dilatation of the blood vessels of the skin. As there is no essential change in blood pressure or acceleration of the pulse — which occurs only when alcohol produces mental excitement — there must be either constriction of deep blood vessels or stimulation of the heart. As the latter does not occur under ordinary circumstances we must look to deep vasoconstriction and superficial vasodilatation as the chief change produced. This change occurs at first as the result of reflex stimulation of the vasomotor center from irritation of the stomach and is later continued by a depression of the vasoconstrictor center the more easily affected blood vessels of the skin showing the change first. The best use of alcohol for the improvement of the circulation is in shock. Here its narcotic action which lessens the appreciation of the injury sustained produces no doubt the chief benefit. Nevertheless the reflex stimulation from the stomach is not to be despised. Hence for this purpose alcoholic liquor should be given in considerable concentration, for instance brandy and water equal parts, preferably administered hot.

Alcohol is more truly a stimulant to gastric digestion than to any other function of the body. There can be no doubt that given sufficiently diluted it is a stomachic. In its power of stimulating the appetite gastric secretion peristalsis and absorption, it is probably unexcelled by any other chemical stimulant in our possession. The normal stomach however, needs no such stimulant, and the diseased stomach is not cured by it. Indeed alcohol is the single most important cause of gastritis in the adult. No doubt, were it not so efficient as a stomachic it would not lead so often to the production of gastritis. As one can digest a poorly cooked meal better with the aid of alcohol than without it poor cooking in the home is probably one of the causes that drive men to drink.

ALCOHOL AS A FOOD

That alcohol is a food cannot be doubted. Over 90 per cent of it oxidizes in the tissues each gram yielding over seven calories. Thus it has a higher caloric value than protein or carbohydrate. That it can replace fat and carbohydrate to a certain extent has been definitely proved. This effect might be useful during starvation. When, however, food is taken in abundance, alcohol is not only superfluous as a nutriment, but positively harmful. It is by burdening the system with excess of food that beer produces the bloated flabby-fat caricature of humanity, it is in this way probably that wine favors the development of gout. But the worst of it is that alcohol is a poison at the same time. To take enough calories in the form of liquor to represent a square meal one would have to drink enough to make one dead drunk. Habitual consumption of it, no doubt, frequently contributes to the evolution of arteriosclerosis and of degeneration of the parenchyma and overgrowth of the connective tissue of the various important organs of the body, most especially of the liver and the kidney, though the extent of its cooperation in the development of hepatic cirrhosis, chronic interstitial nephritis and myocarditis is not yet fully established. It is certain that alcohol cannot be considered a useful food for healthy persons. With the drunkard, the food value of alcohol becomes greater in proportion to the degree to which he develops tolerance to its intoxicating qualities.

Owing to the deranged condition of his stomach, which makes it impossible for him to digest in comfort enough of other food, he becomes more and more dependent on the liquor, which not only helps him to digest his food, but also serves as a food itself

In fever, alcohol is oxidized to a much greater extent than by the same person at normal temperature Hence its food value might be of consideration in fever patients, especially in cases in which digestion is very much impaired The mode of administration of alcohol to the fever patient depends on the other effects that might be desired at the same time If we wish to obtain the stomachic effect, it is best given in the form of milk punch, a teaspoonful to a tablespoonful of brandy in each cup of milk On the other hand, should we desire its stimulant effect on the circulation, a tablespoonful or two of brandy would be given diluted with one or two parts of water, the dose being repeated every hour or two The effect should be watched, and the dosage continued only when it is decidedly favorable When the stomach is nonretentive or the patient cannot swallow, the alcohol may be administered in starch water by rectum Should hypnotic action be desired in a fever patient, beer or bottled stout might be given Whether or not liquor thus used would lessen resistence to infection, cannot be answered in the light of our present knowledge It is well known, of course, that drunkards give a much poorer resistance to infection than the abstainer This, might, however, be due to the tissue damage produced by the previous use of the liquor The rule that a narcotic drug habitue should not be deprived of the drug his system demands, when serious sickness overtakes him, should no doubt be applied here When a drunkard has pneumonia, it is a poor time to attempt to break him of the liquor habit It is just in such cases that liquor may be life saving

I am very doubtful regarding the desirability of using liquor as a tonic in convalescence from acute disease The patient is altogether too apt to think that what was good for him when he was weak ought to be good for him when he is strong Likewise, because of danger of formation of the liquor habit, alcoholic beverages should not be prescribed in chronic ailments, as, for instance, beer in insomnia After all, alcohol is merely a symptom remedy It does not cure anything, excepting perhaps neuralgia of the fifth cranial nerve, when 1 or 2 c c of a 1 per cent solution of cocain in 90 per cent alcohol are injected into the various branches of this nerve to produce a more or less permanent degeneration of the nerve

EXTERNAL USE

Perhaps the best use of alcohol is the external use Thus it is useful as a skin disinfectant, when used in full strength For chronic otorrhea, 30 per cent alcohol saturated with boric acid may be used to fill the meatus, which is subsequently mopped dry The strength of the alcohol may be gradually increased up to 95 per cent Mucous membranes do not tolerate alcohol in disinfectant strength In the mouth, alcohol can be borne in strengths up to 30 per cent, which may be useful as astringent if not as disinfectant

As an antiseptic, compresses moistened with alcohol as strong as can be borne are useful in the treatment of skin infection, as in furunculosis The initial concentration may be 25 per cent, the strength being gradually increased up to 60 per cent or more, as tolerance is developed The compresses are covered with oiled silk to prevent evaporation, and changed two or three times daily Their action may probably be enhanced by the addition of boric acid to saturation, by the application of a hot water bag outside the dressing, and by using hot boric acid dressings for one hour each time the compress is changed

As a rubefacient, similar compresses moistened with 95 per cent alcohol and covered with oiled silk are useful in the treatment of felons, boils and similar subcutaneous inflammations

While alcohol produces rubefaction, when applied under occlusive dressing, it is a cooling lotion producing vasoconstriction when applied in such a way as to favor evaporation Thus gauze kept moist with 50 per cent alcohol and applied without covering forms a grateful cooling application in erysipelas Dilute alcohol is also useful for sponging fever patients, though a somewhat more liberal use of cold water would be just as efficient

CONCLUSION

It may be stated that alcohol has certain definite uses in the treatment of disease, though it is by no means indispensable In the hands of the people, it is a dangerous habit-producing narcotic The medical profession, well knowing its evil effects, cannot but ally itself with its enemies Should humanity be deprived of liquor, it will have lost a consoler, but will have far less need for consolation Alcohol may afford man a sense of well-being, but it certainly does not contribute to the welfare of the human race

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CRYSTALLINE DEPOSITS IN THE EYE*

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A study of life processes, even though we are not able to arrive at final conclusions, is always a subject of great interest For the ophthalmologist a condition in which side by side with the normal functioning of an organ or a tissue may be seen a return to the elemental substances of which it is composed is peculiarly important, because in the eye alone, of all of the tissues of the body, he may follow Nature at work in her laboratory He may see the blood vessels swelling in congested areas He may observe the serous transudation, becoming in time a plastic exudate If he cannot actually discover the blood vessel in the act of breaking, he can at least determine its location and disposition when a hemorrhage occurs He is able to note the process of absorption or of disintegration of the transuded fluid, following it finally to the point at which, through retrogressive changes, it is reduced to its ultimate constituents, and glistens in the retina or scintillates in the vitreous as scattered masses of bright light reflecting crystals of cholesterin or atrophic patches of pigmentary degeneration

It is of interest to the ophthalmologist, moreover, as he recognizes these end-results, degenerative changes which he may trace back to their origins, for the reason that having observed their termination he may the more readily perceive the earliest tendencies which, if continued, may lead to like disastrous results It is a condition, furthermore, that appeals to him as a pathologist, as the same forces that impede the progress of normal physiologic processes in the eye during life may be producing similar changes in remote parts of the body where they cannot be seen and where their existence may be only inferred from the presence of symptoms which are more or less misleading.

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* Read before the Section on Ophthalmology at the Sixty Eighth Annual Session of the American Medical Association New York, June, 1917

I have ventured therefore to choose a somewhat unusual subject, for though I may be unable to add any very new facts in relation to it it may be worth while for us to consider in what tissues of the eye a reversion to the deposit of crystalline substances may occur, how these processes are brought about and what they connote.

CRYSTALLINE CASTS IN THE CORNEA

It has been exceedingly rare in my experience to find in an eye, otherwise functioning normally, an extensive deposit of lime salts in the cornea. That they should occur is in itself an evidence that that particular part of the cornea has lost its vitality. One special case, coming under my observation some years ago impressed me strongly.

The patient, a man then beyond middle life and seemingly in perfectly normal health had been under my care some twenty years before. At that time he suffered from an extensive corneal burn involving both eyes and leaving deep opacities. Only the upper parts remained clear, and he was able to see through these by reason of iridectomies that I had made at the time and had been thus enabled to carry on his work as a carpenter. After so many years he came again with the ocular conjunctiva of the better eye on which he had chiefly depended highly injected and intensely painful. The sensation was as though it were filled with sand. The condition had been growing worse for weeks until it finally grew unbearable. The surface of the cornea presented the usual white nebulous appearance of a thick leukoma with the vessels of the conjunctiva everywhere enlarged and extending to the limbus. On touching the surface with a probe I found that it gave a hard stony or glassy impression and by running the point of the probe over the surface I found that a solid limy deposit had settled on the surface of the cornea, and while the surface seemed smooth the epithelial covering had been wholly rubbed away by the lid and it was actually covered with fine elevations like pin points in reality giving the effect of an extensive foreign body. With some little effort I succeeded in prying the mass from the eyeball and it came away in the form of a perfect cast the inner surface especially being honeycombed where it had adapted itself to the roughened surface of the substantia propria of the cornea. The outer superficies were also roughened giving the appearance of having at one time been smooth but the more prominent parts seemed to have been worn off, either from the attrition of the lid or from the chemical action of the secretions of the eye. On the edges of the cornea several smaller flakes were scaled off in the same way. In some places it was necessary to take a sharp knife to scrape off the mineral deposits, so intimately had they fixed themselves in the interstices of the corneal fibers. The removal of the deposit ended the discomfort from which the patient suffered, and he has never had any recurrence so far as I know.

Similar deposits not infrequently develop in scar tissue, resulting from old corneal ulcers in which the epithelium has been destroyed. They are always slow in forming, and the pathology seems to be the same in both instances.

Occasionally lime deposits may be found in the substantia propria of the cornea in which there have been no previous inflammatory changes. These seem to be of much the same character as the structural degeneration which occurs in the elastic tissue of the vessels in arteriosclerosis.

CALCAREOUS DEGENERATION IN THE SUBSTANTIA PROPRIA CORNEAE

A spare feeble old man whose arteries had for many years been hard had had for a long time nebulae scattered through the cornea. More recently these had grown dense. In the right eye a mass occupied the pupillary area and was perhaps 2 mm in diameter, gradually thinning toward the edges. The arcus senilis had taken on such a degree of density that it could with difficulty be distinguished from the white scleral tissue. A relatively clear area formed a circular zone of sufficient breadth to show almost the entire iris and a small and not very mobile pupil. In course of time the lens became opaque, and as there existed a good projection field and blindness was already present with no hope of improvement I yielded to his importunities and extracted the lens. As the knife engaged the cornea the sensation conveyed to the hand was that of cutting a tissue filled with sand, and even the sound of scraping could be heard as the blade encountered the hard limy deposit with which the tissue was strewn. This was undoubtedly a very rare condition and was allied to the "nodular opacity" in which Treacher Collins says that calcareous deposits are sometimes found.

The operation proceeded without any other unusual incident. Healing was followed by no inflammatory reaction but so advanced were the degenerative changes that the small amount of improved vision obtained by the operation gradually disappeared.[1]

The concretions which in the conjunctiva or on the tarsus have been considered of sufficient importance to have been carefully studied by Fuchs, are not of infrequent occurrence in the eyes of elderly people or when the eyes have been irritated or inflamed. Sometimes they are wholly encysted, occasionally they protrude through the epithelium appearing as white or yellow bodies, and until they are removed cause much discomfort.

The concretions are the result of mucoid exudate in retention cysts. They are of the same character as the concretions found in degenerate chalazia.

Calcareous and osseous degeneration of the choroid have been so carefully studied, and so much has been written concerning these conditions, that I shall only briefly refer to them. The deposits, as were shown many years ago, are not in the choroid proper, but in the fibrous exudate between the choroid and the retina. Ossification is the last of the degenerative changes that occur in plastic choroiditis.

In eyes which have been subject to any long continued inflammatory process, calcareous concretions may be found in almost any of the tissues.

Bietti[2] found limy deposits in the optic nerve head. There was glaucomatous cupping in which new tissue was formed as a result of retinal inflammation, and in this the lime salts were deposited.

In nine cases reported by Rumschewitsch,[3] ossification and calcification were found in different structures in the eye. In six there was a deposit of bone in the choroid which was not confined to the choriocapillaris. In two there was ossification of cyclitic membranes. In one there was a bony mass inside the vascular layer of the choroid with calcareous deposit in the retina.

Albertotti reports two cases of bony mass within the choroid.

Roy[4] records a calcifying fibroma of the orbit.

Arboleda, a South American ophthalmologist, describes a condition characterized by the presence of minute calcareous bodies in the palpebral conjunctiva, frequently seen in Bogota, usually at the lid margins and at the culdesac

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[1] A condition closely allied to this rare form of corneal degeneration is described by Collins and Mayou as transverse calcareous film of the cornea.

[2] Bietti Ztschr f Augenh January 1908

[3] Rumschewitsch Arch f Ophth 1908

[4] Roy Montreal Med Jour 1908

All of these conditions must be distinguished from conjunctivitis petrificans, to which attention has within the last few years been directed Sidler-Huguenin records a remarkable case of the latter condition occurring in a hysterical girl, aged 16 It was induced by her putting lime in the conjunctiva sac and grinding it into the lids, by scarifying the conjunctiva and by contusing the lids Chemically and anatomicopathologically it differed scarcely at all from previously described cases of this remarkable form of conjunctival disease, and the author thinks that by a careful study of the patient, this disease as an entity may disappear from our literature

The disease is so unusual that it may bear a brief description The best description of it available is that found in the American Encyclopedia of Ophthalmology It was first described by Leber in 1893, and is characterized by the presence in the conjunctiva of inflammatory swelling in which opaque white spots may be seen The spots consist of lime in organic crystallizable combination They increase in size as the disease spreads spasmodically, and finally coalesce, forming a hard, stony mass New foci will appear while others are healing, and the process thus lasts for months or years These smaller foci are said to vanish by absorption, while the larger ones coalesce into shriveled, thickened spots on the conjunctiva, but those who have seen cases of this kind do not explain how it is possible for a limy concretion to be absorbed Blindness is through corneal involvement, and the treatment consists of removing such a focus when it is possible to do so

Del Monte, the Italian ophthalmologist, gives a detailed history of a case of this kind which came under his observation, in which the *Bacillus xerosis* was found to be present The *Bacillus xerosis,* we know, is commonly found both in health and in disease Indeed, it was the only micro-organism present in a large proportion of the cases of infantile ophthalmias reported to our local board of health during the past winter There seemed to be a xerosis epidemic

In Del Monte's case, in an eye previously sound, hyperemia of the tarsal conjunctiva and the fornices suddenly came on and remained there for about four days, accompanied by very copious secretion, and then on the middle portion of the tarsal conjunctiva below and in the inner sectors of the conjunctivae of the globe, sometimes relatively large and single, at other times minute and multiple, these being accompanied by sharp pain and profuse lacrimation The epithelium over these hemorrhages was shed as grayish white detritus, the aspect of the parts resembling that of a burn of the membrane, the margins clean cut, but the floor irregular, covered by whitish or yellowish foci, not easily removed even with scraping, the whole aspect of the exudate tough, membraneless, smooth, not elevated, and surrounded by considerable hyperemia, as well as the resulting scars, strongly suggesting the appearance of a diphtheritic ulcer Other little foci appeared also without being preceded by hemorrhages, similar in appearance, always small in size, and whitish The healing of these superficial ulcerations, and then the return of pain, hemorrhages and the formation of fresh lesions went on for a time as narrated Apart from an injection of serum no treatment seemed to produce any effect whatever

The pathologic examination was exceedingly interesting The process, it seemed, divided itself into two periods, as shown from the microscopic examination of portions of the tissue excised at an early stage in the morbid process At a very early stage there was loss of epithelium, although the surface was smooth In the substance the lymph spaces were very large, so much so that at parts the tissue was almost reduced to a large mesh network In this tissue the vessels were dilated, with edema of the endothelium in all the coats In the parts later removed there were signs of copious serous and cellular exudation which had parts in the interior of the fibrous tissue

Del Monte's impressions from carefully made examinations are that the first step in the morbid process was an edema and cellular inflammation Following this, by the absorption of the fluid, and in consequence of the pressure undergone which would, of course, be accentuated by the existence of highly resistant fibers, calcification might easily take place with partial necrosis of the tissues Micro-organisms were obtained from the surface of the ulcers and from the broken down tissue, as well as from the surrounding zone of infiltration Occasionally under the epithelium, at the edge of the ulcers, would be found large cells such as are seen in xerosis Two forms of organisms were frequently present, one bacillary and the other coccal, but not, the author concludes, staphylococcal He was unable to identify it with any measure of certainty The xerosis bacillus was found deeply penetrating the tissues, sometimes even in leukocytes and in great numbers in the epithelial cells Successful treatment followed the use of Behring's antitoxin serum

Few cases of this rare disease have been reported Among the most important is that of Laeber before the Heidelberg Congress in 1895 Cases have also been observed by Reif and Mayweg and by Posey in this country

Perhaps the most typical form of degeneration which may go through the various phases to the deposit of the lime salts is found in the lens as it develops into cataract

When the lens begins to sclerose the fibers are drawn more closely together With this is a contraction of the intrafibrillar cement, a narrowing of the fibers, and a firmer interlocking of their crenated edges Between these shrunken fibers the interfibrillar fluid collects in drops Gradually the opacity extends until the lens is ripe Following the period of maturity comes that of hypermaturity, in which the cortex liquefies, forming an opaque milky fluid The surface of the capsule loses its radial markings and presents a homogeneous surface on which little white specks may sometimes be seen These are due, according to Mayou and Collins, to calcareous deposits in secondary cataracts which form as a result of the diminished intracapsular tension Ultimately degenerative changes progress in morgagnian cataract, the fibers undergo fatty degeneration, minute droplets form in them, giving rise to a granular appearance, these run together, and the fibers break down In this way spaces are formed in the cortex of the lens containing a mixture of albuminous globules and drops of fat As the cataract progresses, these spaces open up into one another, and more and more fibers undergo degeneration Ultimately the whole cortex may become liquefied, and sometimes contains cholesterin crystals

I have given this detailed description of the retrogressive changes which take place in the reduction of the lens from a vital organ into its primitive salts because it is exactly interpreted by our knowledge of cytology In all life processes the structure proceeds from the simple to the more complex, from the elemental to the composite When the vital bone ceases to be dominant the complex structures revert, going back again, step by step, through the same processes to their simple constituents

The more important advances that have been made during the past decade have been along the line of physiologic chemistry. With the upbuilding in its simplest form of the substances found in air and water into the protoplasm which becomes organized into living structures, capable of performing the functions for which it is designed, there must be corresponding retrogressive changes. In order that that perfect equipoise may be secured, the balance of the increment and the excrement of the cell must be maintained. This balance being once destroyed, the initiation of structural degeneration will have begun.

In considering this reversion in the living body to primitive forms we are looking on the last phase of organic life. It is the end-product of a long series of changes, of which the beginning was in the cell. There would be little of value or even of interest in recounting such conditions, even as curiosities in pathology, if they carried with them no intimation of the reason why the vital energy had departed and why with its departure the structure, which it had held together, fell to pieces. Thus the study of dead tissue, no matter how carefully performed, fails to tell us.

The first altered pathologic condition which we see is macroscopic, the next is microscopic; the third — that which is most helpful — deals with physiologic chemistry.

BIOLOGY OF THE CELL

In every case of disease there must have been a wide range of gradations, from the initial disturbance of nutrition through the breaking down of structures up to the final dissolution of the material into the elements of which it is composed. The end results are visible to the naked eye. They are more fully detailed under the microscope, but they can be comprehended only through our study of physiologic chemistry. Permit me, therefore, in a word to recall a few of the important facts which have a bearing on the biology of the cell.

Every living cell, no matter what may be its function or ultimate destination, is a mass of protoplasm enclosed within a cell wall. It has in its substance proteins, lipoids and an enzyme. It is in fact a colloid in which crystalloid substances are readily soluble. Under the influence of chemical action, of heat, of electricity, of light or of radioactive forces, the cell is split up into the component carbohydrates, the molecules forming new groupings, through a long series, until the simpler forms are finally reached.

As Pauli has shown in his various lectures on "Physical Chemistry in Medicine," physiologic experience compels us to believe that chemical reactions of the most different kinds are simultaneously possible in the homogeneous ground substance of the cell, and in even the smallest particles of protoplasm, antagonistic chemical reactions, such as oxidation and reduction, hydration and loss of water, condensation, synthesis and their opposites, assimilation and dissimilation, are likely to occur through and beside each other.

Just as the chemist allows different chemical reactions to take place in different vessels, the cell is believed to utilize the different chambers of the honeycomb structure, and with the help of the colloidal ferments, the number and knowledge of which is daily growing, to allow the necessary reactions to go on independently of each other.

In order that we may visualize these cellular activities, which are constantly taking place, we must think in terms of cell structure continuously related. With such colloids as the cornea, the membrane of Descemet, the lens capsule, the lens cortex, the vitreous, the hyaline membrane, the nerve cells of the retina and the membrane of Bruch in contact with such colloids as the lymph and the blood plasma, with the aqueous filled with crystalloids in solution, with each cell penetrable by the toxins given off from bacteria or from chemical changes, we may begin to realize the enormous possibilities that are opened up to us not only concerning the physiology and the pathology of the eye but as to the therapy as well. The same laws, it will be remembered, govern the cell contents and its membrane as to osmosis and surface pressure as apply to other animal membranes, and while it is not yet proved it is not at all improbable that the edema within the eye, whether it takes the form of an acute or a chronic, a simple or a fulminating glaucoma, may ultimately be found to be due to the swelling within the vitreous cells of soluble toxins. Equally the atrophic changes in the lens fibers, like the fibrous and subsequently fatty changes in xanthelasma or in the arcus senilis, are evidences of the presence of soluble toxins which have disturbed the normal functioning of local cells.

Therapeutically it is clear that every drug substance introduced into the animal body must be ionized before its constituent electrons can activate those within the living cell. This is, of course, aside from the subject under consideration. It has been most interestingly treated in a little volume by Leduc entitled "Electric Ions and Their Use in Medicine."

The acute or chronic inflammation of a tissue is only an intermediate stage and is produced by a local irritation which may be due to a toxin introduced by some pathogenic bacterium.

Practically all forms of uveitis that are not traumatic, and many that are traumatic, are due to this cause. We no longer speak of rheumatic iritis. We look for the source of infection of both the rheumatism and the iritic inflammation. It may be found in an apical tooth abscess, it may arise from an infected sinus, or it may be as remote as the appendix. From such a locally infected point the toxin given off by the bacterium, the staphylolysin or the streptocolysin, is readily absorbed by the blood plasma and carried to the uveal tissues. Many illustrations come readily to mind, but one will suffice.

A lad of 18 had for five years been suffering from choroiditis. Large patches of exudation had been followed by atrophy, involving the macula of one eye, and coming dangerously near the visual center of the other. He had been under able conscientious and expert care. When he was seen in midsummer in consultation it was evident that there must be somewhere a nidus, a focus of infection. He was seemingly perfectly well, free from both tuberculosis and syphilis. An investigation of his nose at first revealed nothing but a swollen middle turbinal. His rhinologist was urged to remove it for exploratory purposes. When this was done immediately a mass of thick yellow pus appeared. The ethmoid was fully explored, opened and cleaned and the active disease in the choroid became quiet. Two months later a new attack supervened when a deeper hidden infected cavity was disclosed, and a roentgenogram revealed a blind abscess at the root of a molar tooth. Both were relieved when some weeks later a third attack developed. On this occasion the small, hard, sunken tonsils were removed and both were found diseased. Since then there has been no recurrence of the active uveal disease, one cannot but feel, however, that had the source of the trouble been recognized much earlier the young man might have escaped the handicap of defective sight for the remainder of his life.

One hesitates to speculate, but the facts so rapidly accumulating all seem to point to the absorption of different toxins as a possible, if not a probable, cause of both glaucoma and cataract

In a recent case of glaucoma, in which excellent iridectomies had been made by an eminent Scotch surgeon, and in which only a remnant of sight remained, there were evidences of extensive choroiditis The poor woman, finally in perfect health, had lost every tooth She said that during the years in which she was steadily going blind she suffered constantly from toothache It is well known that no sanitary precaution has been more neglected among the poorer classes, and even among the fairly well-to-do, than the care of the teeth

One can readily understand from the cesspools that one finds in the mouths of those from whom more would be expected that these must be never ending sources of infection I think that we will find, too, if we go outside of our special lines of work, that there is not a patient who comes to us, with commencing riae in the lens, who will not be found to have paired metabolic functions There will be a greater lesser degree of intestinal indigestion, with the resultant absorption of toxic products And if we would avoid the final degeneration changes, which so often are presented to us, we must seek for all possible sources of infection before the damage has been done

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ABSTRACT OF DISCUSSION

Dr Burton Chance, Philadelphia It is difficult to get at the chemical reactions going on in the ocular tissues, and the results of the observations of careful observers have often been disappointing Certain general states of depravity justify us in assuming that deleterious compounds are manufactured which act on the ocular tissues, but it is difficult to link up well-marked signs of degeneration with any bodily ailment The origins of degenerations in conjunctiva and cornea are obscure, in so far as their presence has been unaccompanied by the classical signs of inflammation In a number of cases of nodular degeneration of the cornea, sometimes more than one in a family, colleagues skilled in laboratory examinations have failed to elucidate their origin in physicochemical and other processes, as, for instance, diabetes The ophthalmologist, therefore, views the whole subject as all but metaphysical, yet he is daily confronted by problems in which he finds in diseased eyes calcareous, crystalloid or colloidal products of inflammation which interfere with function or destroy the organs Can it be that ordinary senile dissolution depends on the wearing out of the cell? Dr Lewis' reference to cases of uveitis dependent on disease of the dental structures reminds me of similar cases From teachings received I have insisted on examination of the teeth and gums in all cases of uveal and protracted tarsal and conjunctival diseases, as well as before operations on the eyeball It has been my observation that delayed recovery after uncomplicated cataract operation has never occurred in subjects with good teeth

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Prostitution and the Army—It is a matter of history that prostitution follows the army In all the European armies at the present time vice and its consequences constitute one of the most serious, if not the most serious, of army problems In some of these armies the wastage from venereal disease has been frightful From the standpoint of military strength and efficiency, such waste is serious From the standpoint of social wholesomeness, it is more serious, for it means that not only will these men bring back into the social structure a vast volume of venereal disease to wreck the lives of innocent women and children, but they will bring back into it other influences, attitudes, and practices which will destroy homes, cause misery, and degenerate society —
M I Exner, M D

OBSERVATIONS ON TREATMENT OF FOOT CONDITIONS

C L LOWMAN, M D
LOS ANGELES

In the treatment of arch conditions by various men, and in the general literature on the subject, the relation of the transverse and longitudinal arches of the foot is not dwelt on much I wish to call attention to a few facts regarding it

Nearly all the anatomic and mechanical points regarding the bones of the foot and the parts they play, alone and together, in the function of weight bearing and locomotion have been ably dealt with in many special articles, and I can add but little to them It is in regard to the clinical use of such knowledge that I wish to speak Briefly, let us recall that anatomically we speak of two arches in the foot largely for convenience, and that actually the structure of the foot is dome shaped, doubly concave on the plantar aspect

The weight is properly borne on the periphery, the short lateral curves having a definite relation to the long anteroposterior curves In the more common static conditions, such as pronation, depression of the arches, "foot strain" and "weak foot," the weight is not thus borne It is shifted inward so that the bones no longer resist the downward thrust, and the ligaments, which are required to assist in sustaining the body weight, gradually weaken and lengthen under the overload This lengthening of the plantar structures, with the lowering and tilting of the dome, changes all its curves, and the foot becomes longer and broader than normal

The lack of appreciation of these facts is evidenced in the plating and shoeing in many of the foot cases which I have had an opportunity to observe I am sorry to say that some of these patients have been in the hands of orthopedic surgeons

When the foot elongates, the distance from the os calcis to the head of the first metatarsal is lengthened in proportion to the relaxation and weight, while the phalanx remains unchanged in length The anterior half of the foot becomes broadened in proportion to the depression, pronation and eversion, while the heel remains practically of the same breadth Now, for a shoe to be fitted correctly, the "hinge" or breaking point of the sole should come directly under the first metatarsophalangeal joint If a relaxed, pronated foot is so fitted, the shoe will then project beyond the great toe a distance equivalent to the amount of lengthening of the long arch due to the change in the metatarsal angle If such a foot is so fitted and no lateral correction is made by raising the inner border of the heel, it will be encouraged to keep on lengthening, because there is not even the resistance of the laces and leather across the dorsum to prevent it

As most patients will not be so fitted, women especially, the shoe will in consequence be too short, and when the forward thrust occurs in the metatarsal region, the toes will be crowded forward into the narrowest part of the shoe As the shoe becomes softer and looser from age, the joint line of the foot will be pushed beyond the hinge of the sole, and faulty back pressure will occur against the heads of all the metatarsals and they will be depressed The result will be worse in either case entirely in proportion to the amount of tapering in the toe of the shoe If the shoe is not straight lasted on the inner border, or the 'swing' of the outer border is not very 'full,' as in the broad type of shoes, the toes will be increasingly cramped. Likewise the ball of the foot or cross arch in front will be depressed in accordance with the hollowness of the sole.

Patients have come to me unrelieved by treatments with plates and shoes recommended and given by orthopedic surgeons. Examination of the shoes, which often had been made to order at an expense of from $18 to $25 a pair, showed that the chief consideration had been to obtain a good grip of the heel and tilt it outward, and the toe of the shoe had been modified to placate Dame Fashion. They were made entirely too narrow to give relief from all symptoms, particularly those in the fore foot. There are many so-called 'anatomic,' 'orthopedic' and 'foot form' shoes on the market which are designed without much consideration for the toes and fore foot except to be made a little wider, rounder or of a more common sense type than the average shoes worn by women.

Many patients get relief at first because the change is radical; but if they have not been told to come back and have plates and shoes changed to meet the changes in the feet, they keep on wearing the same style and size of shoe because some prominent surgeon or orthopedist prescribed it. They do not realize that if a depressed arch is to be restored to normal and the arch plate and the shoe are to do any good except to relieve pain, the foot must become shorter and narrower. It cannot do this if the patient continues to wear a certain size plate in, say, a No. 5 shoe, when the normal foot measurement would call for a 3 or 4 shoe.

I have the same criticism to make in regard to stock or shoe store plates, which are indiscriminately prescribed and are even advocated and advertised in reputable medical journals. The average store plate is absolutely wrong mechanically. It is really a valgus shaped plate too long on the inner border and too short on the outer border. It usually has no lateral concavity and tips the foot inward into the opposite position from which it should be. To correct a valgus, the foot must be put in varus, a simple fact we all know. Yet I have seen surgeons prescribing and using plates that only increase the trouble. If the person with the flattened foot wears a No. 6 shoe, the clerk puts on a plate of corresponding size, which fits the patient and thus violates one of the commonest rules in orthopedic practice, namely, that patients should be made to fit the apparatus and not vice versa.

Certain conclusions must be drawn from such practices. The surgeon or practitioner is ignorant of the subject, or uses a stock plate because he can buy it cheaply in quantities and make a profit on it, or he is satisfied to have his patient obtain some relief from pain, to receive his fee and get rid of the patient, or he recommends certain plates and shoes because he sees them advertised in medical journals and demonstrated at medical conventions. Many seem willing to relieve pain and obtain fees rather than run the risk of losing a patient, especially a society patient, by insisting on what they know to be a correct shoe and what a normal foot should wear. They also neglect to follow up the foot needs until structurally it becomes as nearly normal as possible.

Now that the whole subject of body alinement is receiving attention, it seems to me that nothing should be more impressed on the general practitioner, the surgeon, and the more inexperienced in orthopedic ranks, than the importance of foot posture and the correct surgical use of shoes. Furthermore, as much emphasis should be laid by them on the fact that they should expect and require their patients to use a correct shoe when they prescribe it, just as they would expect them to take medicine prescribed for some functional derangement.

THE ENDONASAL OPERATION ON THE LACRIMAL SAC*

WILLIAM P. CHAMBERLIN, M.D.

CLEVELAND

To many it may seem a presumption for a rhinologist to enter the sacred domain of this section and discuss a subject so intimately the field of the ophthalmologist. The *Grenzgebiet* is still a cause for strife between surgeons as between nations. My own hope is that in the domain of medicine at least, it *may soon* be transcended by that higher aim "the ultimate good to the patient," just as in national life it may ultimately be a question of "the *greatest good* to the greatest number." Then will humanity and benevolence rather than selfishness be the guiding principle in men's lives.

The demands of modern medicine become each day more extensive and exacting, and the specialties each day more circumscribed in their limitations. Whereas, in this country at least, it is but a short cry back to the times when the same individual encompassed, or attempted to encompass, within his domain, the diseases of the eye, ear, nose and throat, such a condition exists as a rule today only in the relatively smaller communities. Ophthalmology has come into its own as a distinct specialty, just as otology bids fair to do in the not too remote future. This assumption of authority and finality in our own limited field makes us in a way more than ever dependent on help from our fellows, according to the extent to which that field affects or is affected by the field of our fellow worker. So the ophthalmologist, who calls in the *rhinologist* to perform an endonasal operation on the lacrimal sac, is no more of an anomaly than the internist who invites the technician of his field, the surgeon, to perform an operation for appendicitis, the surgeon who invites the otologist to perform an operation on the mastoid process, or the rhinologist who calls to his aid the dentist in his care of a diseased antrum, or to complete the result of his tonsil and adenoid operation by attending to the proper alinement of the child's teeth. Here is an instance in which team work and not selfishness, but mutual cooperation, spells success for both, and assures, or helps to assure, a successful outcome for the patient. My own cases are only those which have been referred to me by the ophthalmologists. In fact, I have no opportunity of seeing such cases in any other way.

Until a few years ago, according to West,[1] the treatment of dacryostenosis had made no real progress for a period of twenty-five years. In 1910 West published his paper entitled "The Window Resection of the Nasolacrimal Duct," and exhibited in all seven patients operated on by this method. This paper, as the title indicates, referred only to the operation on the duct, but laid no claim to being an endonasal operation on the sac In three of the cases, however, the sac itself was really opened West soon became convinced that the opening of the nasal duct alone could not be sufficient, and that any operation, to be successful, must concern itself rather with the opening of the lacrimal sac as well He immediately set himself about the new task, and, through the generosity of Professor Silex of Berlin, gained access to an exceedingly rich clinical material The results of his later endeavors he reported in 1913 At that time, he reported the investigation of over 300 cases of various diseases of the lacrimal apparatus, and the operation on the lacrimal sac in 130 cases by the endonasal method He claimed a favorable result in over 90 per cent of the patients so operated on

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* Read before the Section on Ophthalmology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

[1] West: Berl. klin. Wchnschr., 1914, **51**, 1633; Arch. f. Laryngol. u. Rhinol., 1913, **27**, 224, 504; Berl. klin. Wchnschr., 1913, **50**, 926.

West asserts that Caldwell was the first to open the lacrimal canal, in 1893, when he reported one case Still later, Killian and Passow reported similar cases The idea of reestablishing the connection between eye and nose, as a passageway for the tears, was known to the ancients, who were for the most part unsuccessful in their attempts In 1863, Berlin had revived the extirpation of the sac from without, and this had remained the operation of choice almost to the present In 1904, Toti published the results of his attempts to reestablish the natural pathway from without by means of a skin incision at the inner angle of the eye In 1910, von Eiken published a paper in which the approach to the sac by way of the antrum was advocated West performed his first operation in 1908

The various operations, previously described, were successful only in a relatively small proportion of cases The external operations often gave rise to fistulas, and, if successful, as far as the curing of phlegmon was concerned, necessitated later the excision of the lacrimal gland to get rid of the epiphora The resulting scar, too, was often unsightly West's earlier operations on the nasal duct were also unsuccessful, because the stenosis occurred at the inferior border of the sac, where it joins the duct The operation was, accordingly, inferior to and outside the field of the real difficulty in a large proportion of cases

West's modified operation concerns itself with the lacrimal sac alone, the duct being disregarded The free opening of the sac itself he regards as essential, if a cure is to be expected That the sac is really opened in all cases is shown by the fact that a probe introduced into the lower punctum passes horizontally into the nose A minute knowledge of the anatomy of the parts is absolutely essential The technic is as follows A quadrangular flap, covering the end of the lacrimal sac, and extending well forward over the ascending process of the superior maxilla, is resected submucously, its base of attachment being inferior After its resection it is turned downward out of the field of operation, this inferior attachment acting as a hinge The denuded area extends vertically through a space roughly limited by an anterior extension of two lines, the upper marking the attachment, and the lower the inferior border of the middle turbinal Neither turbinal is encroached on, unless an obstructing hypertrophy is present By means of appropriate chisels, a portion of the posterior border of the nasal process of the superior maxilla is chipped away, and the thin bone, covering the sac, resected The sac itself is then grasped with forceps and a large portion of its nasal aspect resected with a thin scalpel The submucous flap is now replaced, the posterior part, over the area of the resected sac, being first removed The flap is held in position for twenty-four hours by packing of iodoform gauze The after-treatment is exceedingly simple, and consists in keeping the nose free of crusts and granulations, and irrigating the sac by way of the canaliculus with a 3 per cent solution of boric acid As stated before, West claims favorable results in 90 per cent of his cases

The advantages of West's, over the previous methods, for the treatment of the various diseases of the lacrimal apparatus, he enumerates thus

"1 The physiologic function of the path for the tears is again restored, so that not only a suppuration of the sac, a lacrimal fistula or a phlegmon is healed, but also the tears flow normally through the nose A later epiphora is accordingly avoided

"2 A so-called cure by probing is rendered unnecessary

"3 The lacrimal gland is spared

"4 A skin incision or a curetting from without, with eventual scar formation, is avoided"

This operation he has performed in every possible sort of disease affecting the lacrimal apparatus

After the operation, certain persons, by sharply blowing the nose, can force air out through the canaliculus West does not consider this a disadvantage, as the patients do not complain of it Halle's suggestion for forming a valve of the mucosa, in order to prevent this, he regards as impossible of accomplishment

A more recent endonasal operation on the lacrimal sac is that of Yankauer[2] The latter considers the West operation unsatisfactory because of the tendency of the opening of the middle meatus to close, such objection being avoided by his improved operation

In the operation of Yankauer, the horizontal incision is begun at the attachment of the anterior end of the middle turbinal and carried forward for a distance of 5 mm It is then carried downward to the anterior border of the inferior turbinal and backward along its inferior, free border, for about 2 cm, or from one-third to one-half the length of the turbinal The incision is carried well down to the bone and the roughly rectangular flap, thus outlined, resected submucously, its posterior attachment acting as a hinge On this hinge it is folded backward and held in place by tucking it under the anterior free end of the middle turbinal A part of this submucous resection consists of the mucous membrane and periosteum on both sides of the anterior end of the inferior turbinal to a point well back of the opening of the nasal duct The bony portion of the inferior turbinal, so uncovered, is then resected with punch forceps The bony covering of the canal and sac is now removed with chisel and punch forceps, and the canal at its extreme posterior aspect slit from the opening in the inferior meatus to a point well above the junction of the inferior portion of the sac with the duct When the sac is found to contain pus, a portion of its inner wall is resected to allow for free drainage into the middle meatus This opening into the middle meatus closes subsequently The internal wall of the duct and sac are now folded forward and held in position by folding the previous submucous flap down on it The latter flap is held in position by a single stitch as well as by packing The subsequent treatment consists in removing the packing after twenty-four hours and irrigations through the lower punctum, the nose of course being kept free of crusts while healing is taking place

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[2] Yankauer Laryngoscope 1912, p 1331, Vol XXII Tr Am Laryngol, Rhinol and Otol Soc., 1913, 294

Yankauer reports in all nine patients operated on by this method during a period of three years "Two were cases of mucocele of the sac, the other seven were suppurative The suppuration ceased in all cases after the operation and has not recurred in any of them The epiphora was relieved in all but one of the cases"

The most recent operation devised is that of Mosher[3] This method of opening the sac and duct was come on as it were, by accident from an observation of the specimens on the cadaver in the development of Mosher's operation on the ethmoid labyrinth and frontal sinus After removal of the anterior end of the middle turbinal and free exposure of the processus uncinatus, Mosher's stiff probe is introduced through the duct into the inferior meatus the canaliculus having previously been slit A roughly rectangular flap limited anteriorly by the posterior lip of the ascending process of the superior maxilla and a portion of the superior border of the inferior turbinal, superiorly by the extreme limit of the middle meatus and posteriorly by the extreme inner tip of the uncinate process, is now resected submucously and deflected downward and backward

The inner wall of the lacrimal cell and bony covering of the duct are now broken through with an appropriate curet, the nasal process of the superior maxilla acting as a guide anteriorly The fragments are removed with a conchotome The inner wall of the duct and sac are now broken through by slowly withdrawing the probe, at the same time turning its tip sharply inward toward the septum The probe is then reintroduced, and serves as a guide to the curetting away of the posterior tip of the ascending process of the maxilla, as well as the upper part of the processus uncinatus The canal is subsequently widened by biting forceps after the probe is withdrawn practically to double its previous width A ligature is then passed through the nose upward and out through the dilated punctum, a piece of gauze being attached, kite-tail fashion, to its middle This gauze is then drawn upward into the lacrimal sac, and the ends of the ligature fastened to the face with adhesive tape The flap is now replaced

After-treatment consists in removing the plug after two or three days, keeping the nose free from granulations and crusts, and keeping the passage free by passing the probe wherever it is indicated Mosher asserts that the probe can be passed either from the nose or from the inner canthus The operation "has been abundantly tried on the cadaver and three times on the living" Mosher admits that "it is too soon to say much about the results on the living, except that, so far, they are good"

From a review of the foregoing methods and operations it would seem that in the development and perfection of the endonasal method a possible solution of a difficulty, which has long been a perplexing one, may be reasonably expected Certainly the external operation and its after-results have left much to be desired The endonasal route obviates many of the disadvantages of the external operation Whether or not the physiologic pathway for the tears into the nose can be maintained permanently in a sufficient percentage of cases at the hands of the average rhinologist is a question which time alone can answer

The results in my own series of eight cases have been fairly good The West operation was that of choice in all but one In this the Yankauer operation was done In only one case was there a complete failure In this case the antrum was accidentally entered Whether or not this had anything to do with the unsuccessful outcome it is impossible to say In three cases a secondary operation was performed, that is, the stenosed opening at the beginning of the middle meatus was enlarged All were cases of dacryostenosis and cystitis, except one This was a case of stenosis and epiphora following a permanent opening into the antrum for empyema

My own technic differs slightly from that of West After the submucous flap has been outlined and elevated, a probe is inserted into the canaliculus, sac and duct If this is difficult, the assistance of the ophthalmologist is summoned This probe is held in place by an assistant Its pressure renders the uncovering of the duct and sac easier When the duct is freely uncovered, the point of the probe is directed inward toward the septum, thus bulging in its septal wall A thin scalpel is now inserted between the probe and the lateral nasal wall, and the incision carried well up beyond the isthmus so that the probe ultimately passes horizontally into the nose, as suggested by West In this way a considerable portion of the duct and sac is completely removed The infiltration of a few drops of 0 25 to 0 5 per cent novocain solution, to the dram of which from 1 to 2 drops of epinephrin have been added following the preliminary cocainization renders the operation bloodless as well as absolutely painless The only pain complained of in any of my cases was that from the pressure of the lacrimal probe

To many this operation from its description may seem difficult or impossible of accomplishment It *is* difficult, and this difficulty I shall not attempt to minimize The difficulty, however is no greater than that attendant on the submucous resection of the nasal septum, and I can assert with firm conviction that any one who can perform a submucous resection can successfully perform the endonasal operation on the lacrimal sac

In my hands the difficulties have been considerably lessened by the use of the modification of West's instruments, which I herewith present[4]

ABSTRACT OF DISCUSSION

Dr Harris P Mosher Boston I have operated on nine patients The results of four after a year are known Three were operated on two years ago When last seen the results were good One recent case is still under treatment and the result is not yet apparent One case was of mucocele of the sac After nine months there was no return of swelling of the sac and the opening into the nose is patent The second was of long standing, a suppurative sac, with a skin fistula The eye is all right and the tears run over only when the patient gets cold A third patient had a suppurative sac for seventeen years complicated by an infected mucocele of the ethmoid labyrinth There is now a patent opening into the nose and the tears run over only on a cold day or in a strong wind The fourth patient had a bony occlusion of the nasal duct which the ophthalmologists, after a number of trials could not relieve This man is wearing a style at the end of ten months, and with it there is no running over of tears except in a strong wind

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[3] Mosher Laryngoscope November 1915 p 739

[4] In addition to the references already given, the following will be found of interest
Onodi Monatschr f Ohrenh u Laryngo Rhinol 40, No 4
Mithoefer Ohio State Med Jour, September 1916
Horgan J B The Operation of Dachryocystorhinostomy Its Indications and After Treatment Jour Laryng Rhinol and Otol London June 1916 225

As to technic, if there is deviation of the septum to the side of the diseased sac, the lacrimal operation should be preceded by a submucous resection of the septum The easiest approach to the sac is through the thin bone of the anterior ethmoid region The steps of the operation are as follows The anterior end of the middle turbinate is removed and the slitting probe is introduced through the cut canaliculus into the sac and on through the nasal duct to the floor of the inferior meatus Next, the anterior ethmoid cells are exenterated Then a cut is made in the mucous membrane of the nose along the posterior edge of the ascending process of the superior maxilla, and the probe withdrawn to the upper margin of the inferior turbinate, and when clear of the turbinate the point is pressed upward and inward and made to break through the nasal duct into the nose The tip of the probe is then slowly forced upward, all the while slitting the inner wall of the nasal duct The upward excursion of the probe is finally stopped by the increased resistance of the superior part of the lacrimal bone Experiments on the cadaver have shown that this manipulation opens not only the nasal duct, but the lower two-thirds of the inner wall of the lacrimal sac Unless it is the purpose of the operator to exenterate the lacrimal sac intranasally, the operation is finished by inserting the silver style This may be removed at intervals and cleaned On evidence of closure of the duct the style must be reinserted

Dr William B Chamberlin, Cleveland One point I did not have time to bring out in the paper is the subsequent closure This is a difficulty in any endonasal operation Three of my patients were operated on the second time, but the secondary operation is comparatively a simple thing The probe is introduced through the sac again and at the point of stenosis you can see a slight bulging It is a comparatively easy thing to resect this with the punch forceps In the after-treatment, if one is careful in keeping down granulations, as in any other part, epidermization will not be retarded In many cases a preliminary submucous resection, especially a resection as high up as we dare go, is absolutely essential It is a sine qua non of the operation

Another point Dr Mosher brings out in the discussion is the resection of the posterior part of the ascending process of the superior maxilla, which makes a groove for the duct This is dense, firm bone It is for the resection of this ascending process that West has devised his chisels, and it is for the resection of this process that I have modified his chisels, making them very much thinner, and also putting on the handle, thus enabling one to see every step of the operation The view is less obstructed than with the West chisels, and you can insert it under the bone, and if it does not make a clean cut the bone may be fractured by a twisting motion The forceps are a modification of the familiar Gruenwald forceps for the ethmoid, and are quite as effective as the instrument which West has especially devised for the purpose

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Managing Atypical Children—Atypical or backward children should not be coddled, but encouraged, and, like plants of slow growth, in some instances they may be "forced" This may be done by supplying favorable conditions for growth and development, and by directing their physical activities in the right channels Comparatively poor health is not always a contraindication, but often a decided indication for this forcing process Many a nervous child immediately begins to improve physically as well as mentally when well directed pressure is brought to bear upon him in psychophysical education—G Hudson-Makuen, M D

THE REACTION AFTER INTRAVENOUS INJECTIONS OF FOREIGN PROTEIN *

FRANCIS J SCULLY, M D
CHICAGO

During the last two years, intravenous injections of foreign proteins have been used as a therapeutic agent in various conditions Satisfactory results have been reported in a variety of acute infections In these reports the phenomena accompanying the injection are taken up as *incidental* to the presentation of the therapeutic results

With the intravenous injection of a foreign protein, a certain reaction takes place which is fairly constant in all cases For the purpose of observing the phenomena following the injections, careful records were made in the cases of acute articular rheumatism in which this treatment was employed Observations were also made in a few cases of chronic arthritis and lobar pneumonia

The foreign protein employed in these cases was typhoid vaccine The vaccine was prepared from an active culture, grown twenty-four hours on agar slants, washed off with saline solution, killed by heating at 70 C for two hours, and preserved by 0 5 per cent phenol (carbolic acid) The vaccine was diluted so that each cubic centimeter contained 150,000,000, and injections of from 0 25 to 0 5 c c were used as the average dose

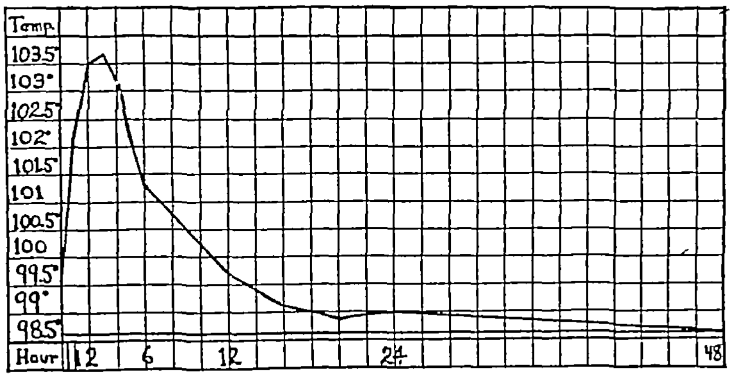

Chart 1—Composite temperature curve following forty seven intravenous injections of typhoid vaccine in twenty five cases of acute articular rheumatism

Patients were taken as they entered the hospital with no selection except to exclude certain cases in which the vaccine was contraindicated, as will be shown later Certain routine measures were taken in the cases in which vaccine was given The patient was allowed nothing to eat for at least one hour previous to the injection, so as to ward off nausea and vomiting During the chill the patient was well covered with blankets When the joints were acutely inflamed, from ⅙ to ¼ grain of morphin was given to relieve the pain incident to the involuntary movements of the joints during the chill The patient was kept in bed three days after all symptoms subsided The vaccine was injected in the morning about three hours after breakfast, and the general symptoms, temperature, leukocytes and blood pressure were followed through the day and on the next morning

THE GENERAL REACTION

Certain general symptoms were noted following the injection For from half an hour to an hour there is no apparent change in the patient's condition Then a chill occurs, which may become quite severe, and is accompanied with the usual symptoms of cyanosis and rapid pulse With the onset of the chill the patient frequently complains of a dull temporal headache, nausea and even vomiting may be frequent at this time The chill lasts from fifteen to thirty minutes and subsides gradually the headache and nausea passing away with the chill Following the chill there is a rise in temperature, and there are changes in the leukocyte count, in blood pressure and in the differential count, all of which will be more fully considered below Following the chill there is profuse sweating The sharp pains in the joints disappear shortly after the chill though a feeling of soreness or stiffness may persist for a short time

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* From the medical clinic of Dr Joseph L Miller at Cook County Hospital

With large doses a more marked reaction was observed In certain cases the average dose proved to be excessive especially in those cases in which the patients were bedridden for some time In these cases there was a severe rigor lasting one or two hours and accompanied by marked cyanosis and a rapid weak pulse Following the chill the patient became very weak and showed signs of collapse There seems to be a profound vasomotor disturbance which may account for the sudden deaths that have been reported following intravenous vaccines

Associated with severe reactions certain other symptoms were noted Herpes occurred in three cases The lesions were noted about the lips and inside the mouth Prolonged headache occurred in several cases Headache occurred in practically all cases during the chill the headache was not constant in intensity nor did the intensity seem to bear any relation to the severity of the reaction Vomiting occurred in four cases with a severe reaction

Temperature Curve—Chart 1 shows a composite curve of forty-seven injections in twenty-five cases of acute articular rheumatism and may be taken as a typical temperature curve Little change is noted in the temperature until the chill occurred Following the chill there is an abrupt rise until a maximum of 103 6 F is reached four hours after the injection, after which there is a gradual fall to nearly normal in sixteen hours and to normal at forty-eight hours This curve corresponds closely to the curve obtained by Culver[1] in gonorrheal cases Composite curves of primary and subsequent injections are similar, though the subsequent injections have a slightly lower curve With the primary injections the maximum temperature of 103 8 was reached four hours after the injection The highest individual maximum temperature observed was 106 6 three hours after the injection The lowest individual maximum temperature was 102 three hours after the injection

Leukocytes—Chart 2 shows a composite curve of forty-three injections in twenty-four cases, and may be taken as a typical leukocytic curve Following the injection and especially at the time of the chill there is a fall in the leukocyte count The count may fall to normal or below, resulting in a leukopenia This will be noted in the chart, the count falling from 11 200 to 5,900 Toward the end of the first hour after the injection there is a gradual increase which continues until the highest count (39,900) is reached, about six hours after the injection Following this there is a fairly rapid fall so that by the end of forty-eight hours the count is about the same as before the injection This curve is similar to that obtained by Culver[1] in his cases

Composite curves of primary and subsequent injections are similar, though the subsequent injections generally produce a slightly lower leukocytosis than the primary or preceding injection The highest individual count was 77 200 six hours after the injection The lowest maximal count was 13 600 Certain cases showed a persistent leukocytosis which did not seem to have any bearing on the severity of the infection or on the therapeutic result The degree of leukocytosis did not seem to have any bearing on the results obtained though cases with a marked reaction and a corresponding increase in leukocytes gave the best response to the treatment With large doses the degree of leukocytosis was greater counts of from 60,000 to 115,000 being noted

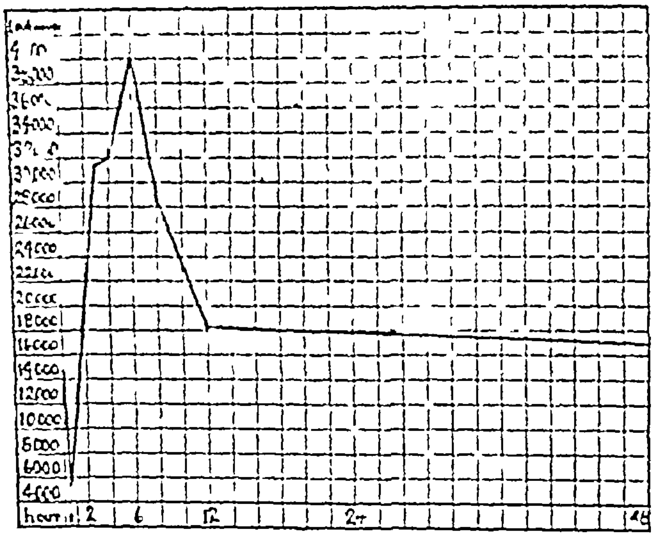

Chart 2.—Composite leukocyte curve following forty three injections in twenty four cases of acute articular rheumatism

Blood Pressure—Chart 3 is a composite of thirty-eight injections in nineteen cases and may be taken as a typical blood pressure curve During the first hour after the injection and especially at the time of the chill, there is a rise in blood pressure This is not well shown on the chart owing to fewer observations made, than at other points on the curve This is due to the difficulty in taking the blood pressure while the patient is chilling the twitching of the muscles making accurate readings difficult, and at times impossible Probably during the height of the chill the rise is greater than shown by the readings which were made After the chill there is a fall in blood pressure, reaching a maximal drop, 92 systolic and 60 diastolic, about six hours after the injection, and then coming up gradually to nearly normal in forty-eight hours The systolic and diastolic pressures vary about equally at all times of the reaction The composite curves of primary and subsequent injections are much alike, both diastolic and systolic, though in the subsequent injections the fall was not quite so great The lowest single reading during the fall was 60 systolic and 40 diastolic six hours after the injection With large doses a greater drop was noted These patients show marked signs of shock

Differential Blood Counts—Considerable variation is noted in the differential count following the injection, as regards both the relative percentages and the absolute values

Following the injection there is a steady rise in neutrophils from the first, reaching a maximum point two or three hours after the injection, and then falling gradually in forty-eight hours to a percentage slightly lower than before the injection The highest individual rise was to 94 per cent from 60 per cent In absolute values the neutrophils follow almost exactly the total leukocyte curve, showing that the increase in the leukocyte count is mainly due to an increase in neutrophils During the chill there is a fall in the absolute value, followed by a sharp rise in six hours and then a fall to the same level as before the injection

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[1] Culver Harry The Treatment of Gonorrheal Infections The Journal A. M. A Feb 3 1917, p 362

The large lymphocytes show a rapid fall following the injection, reaching the lowest point two or three hours after the injection and then rising to a percentage slightly higher than before The most marked individual fall was from 23 to 3 per cent In absolute values, there is also noted a fall during the chill, followed by a slight rise reaching its maximum in eight hours, and then falling to normal While the percentage curve shows a steady rise after eight hours, the absolute value remains about the same, owing to the decreasing total leukocyte count

The small lymphocytes show a slight rise during the chill followed by a fall two or three hours after the injection, then gradually rising to about the same percentage as before The most marked individual fall was from 20 to 3 per cent In absolute values there is a decrease during the chill, owing to the decreased total leukocyte count With the increasing leukocyte count there is also an increase in small lymphocytes to about normal, where it remains constant

The eosinophils show an absolute and relative decrease during the first six hours after the injection, followed by an absolute and relative increase Simon[2] noted this variation in eosinophils following intraperitoneal injections of killed bacterial cultures He found that subsequent injections were followed by a higher percentage of eosinophils than the preceding injection

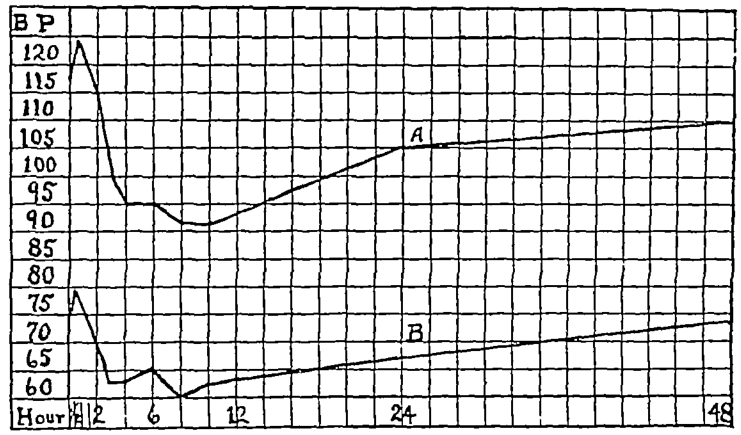

Chart 3 —Composite blood pressure curve following thirty eight injections in nineteen cases of acute articular rheumatism *A* systolic, *B*, diastolic

The basophils show a slight relative and absolute increase during the first eight hours, followed by a relative and absolute decrease

The urine showed no marked change following the injection At the end of twenty-four hours there was a slightly higher specific gravity due probably to the loss of fluids from the profuse sweating No albumin appeared when none was found before the injection, nor was there any change when albumin was present before the injection

Certain changes occur in the blood serum following the injection Work by Jobling and Petersen,[3] and later work by Petersen indicates a rise in ferments and a decrease in antiferments at the time of the reaction

Four patients with chronic arthritis were also treated by intravenous vaccines with reactions similar to those in acute articular rheumatism Three patients with lobar pneumonia also received the vaccine Early cases in the second or third day were chosen, and a similar reaction occurred, except that the temperature, instead of remaining low after the injection, gradually rose again in forty-eight hours to about the same level as before, where it continued until the natural crisis No changes were noted in the physical findings following the injection

Intravenous injections of vaccine are contraindicated in those cases in which the vasomotor system is weakened, and when the nervous system is unstable In these cases collapse may occur, with a possibility of death resulting Organic heart disease requires cautious treatment In serious lesions the injection is absolutely contraindicated, as the heart becomes dilated and overworked, so that cardiac failure may result In one case of this series with a mitral murmur, following the injection the heart dilated 2 cm to the right, and 4 5 cm to the left Gradual recovery occurred, however, in twenty-four hours

In acute infections, as lobar pneumonia, small doses are advisable because of the weakened cardiac musculature Chronic alcoholism may be an absolute contraindication, as the shock of the vaccine reaction may precipitate an attack of delirium tremens, resulting in a prolonged or fatal course In one case of acute articular rheumatism in a heavy alcoholic, the patient received the usual dose of vaccine and had a typical reaction following Thirty-six hours afterward he became delirious and remained so fifty-two hours when death occurred

THERAPEUTIC RESULTS

In twenty-five cases of acute articular rheumatism treated with vaccine, the following results were obtained Ten cases cleared up after a single injection All were recent and uncomplicated cases No recurrences were noted while under observation, nor did any of these patients return to the hospital Three cases cleared up slowly, requiring two or three injections The shoulders were the last joints to clear up, the stiffness and soreness seeming to remain longer than in the other joints Two cases recurred ten days after clearing up nicely after the first injection These patients remained well after a second injection Four cases were complicated, two with endocarditis, one with pericardial effusion, and one with empyema In these cases there was a continued high temperature, and the patients received only temporary improvement after the vaccines until placed on salicylates Four other cases were resistant to vaccines and cleared up under intravenous injections of sodium iodid The remaining two patients are the one developing delirium tremens with a fatal result as cited above, and the other leaving the hospital refusing further treatment

SUMMARY

Following intravenous injections of a foreign protein, certain definite phenomena occur A general reaction is first noted with a chill accompanied by headache and nausea, and followed by sweating and relief of joint pain

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[2] Simon Internat Clin , 1906, 1 166

[3] Jobling, J W, and Petersen, William The Nonspecific Factors in the Treatment of Disease, The Journal A M A , June 3, 1916, p 1753

Following the chill there is a rise in temperature reaching a maximum about three or four hours after the injection and falling to normal in forty-eight hours

There is a fall in leukocytes followed by a marked increase reaching a maximum six hours after, and gradually falling to the same level as before the injection

The blood pressure rises during the chill then falls remaining low for three or four hours, and rising gradually to normal

There is considerable variation in the differential counts but the main change is an absolute and relative increase in the neutrophils

The urine shows no definite change following the reaction Intravenous vaccines are contraindicated in marked cardiac lesions and chronic alcoholism

Successful results were obtained in 40 per cent of the cases of acute articular rheumatism after a single injection and in 52 per cent after two or more injections

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TREATMENT OF PARESIS BY INJECTIONS OF SALVARSAN INTO THE LATERAL VENTRICLE

SECOND REPORT

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AND

NORMAN SHARPE MD
Attending Neurologic Surgeon St Mark's Hospital

WITH LABORATORY DATA BY

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NEW YORK

In our first report of this method of treatment of paresis[1] only three patients had received any systematic treatment Our first injection was given Jan 12, 1915 Since that time we have made injections in other cases, ten of which were treated at a sufficiently remote date to make a report now of value Thus this article is based on the results obtained in the first thirteen consecutive cases, in all but two of which three injections were given, and in two, five injections each A great deal of care has been taken in studying these cases both before and after treatment We were particular to select for injection only those patients who undoubtedly had paresis, and in all cases the results of the examination of the spinal and ventricular fluids were carefully studied both before and after each injection In none of these cases were there any symptoms of an alarming nature after the injections Few patients showed even a slight rise in temperature, and none remained in bed longer than three days Two of the thirteen, Patients 9 and 10, died, not from the effect of the operation but months after their final injection, dying in the terminal stage of paresis Two other patients, one of whom received only one injection, were unimproved and have since been committed to asylums The remaining nine have shown decided improvement, not simply in the serology, but from a clinical standpoint They are much less emotional, their memories are better, they are improved physically and mentally, and they are still improving

In five of the nine (Cases 4, 5, 6, 7 and 8), there has been an exceptional improvement These five patients have been able to return to their work and are now self supporting They had been unable to work before coming to us for from three to eighteen months Following injection and the period of several months' rest we advise after treatment, they have now been at their work for from five to eighteen months Although two of these patients appear to be entirely normal and have been working steadily for more than a year, it is still too early to assert that any of them are cured A period of three years and possibly five years must elapse, without deterioration, before they can be considered free from danger of recurrence

Our experiments on animals as reported in the first paper have shown that fluid introduced into the ventricle reaches all portions of the cortex of the brain and cord and has a much greater spread and diffusion than one introduced by any other method It is only natural, therefore, that the improvement noted in these cases is such as has never before been obtained in any series of cases

Not one of these thirteen could be termed an early case The observed symptoms had existed for from six to twenty months In several however the deterioration was but slight and it is in these cases that we have obtained the maximum improvement

In regard to the physical signs naturally we have not been able to influence the Argyle Robertson pupil or to any extent the increased reflexes However, we have seen the tremors of the face and tongue and dysarthria, if moderate disappear after treatment

Beginning with 0 6 mg of salvarsan in the first case we have gradually increased the strength of the serum until now we are giving double the initial dose We do not know yet whether or not we have reached the maximum dose or whether we are timing the injections so as to obtain the best results It has been our custom to give the second injection a week or ten days after the first, and the third injection two weeks later There is no positive reason for this, and it is purely tentative Probably in the light of future experience, we may find it better to give it at different intervals Probably we shall find it necessary to give more than three injections at first, and then, after several months, to give in some cases another series of injections These are points that can be determined only by a wider experience and many more cases

The harmlessness of the operation and the excellent results so far obtained lead us to urge that this form of treatment be universally adopted in the early stages of the disease We have not found, and do not believe, that it has any effect in even retarding advanced cases But it certainly seems to us that in the beginning of the disease, before serious changes have taken place in the cerebral structure, it holds out the best hope of improvement, and perhaps permanent stoppage of the disease, that we know of today

SURGICAL ASPECTS

The operative technic which we are now using is the same as that described in the first paper It is reasonably simple, has proved entirely safe, and we have seen no reasons for changing it The time required for an intraventricular injection by this method varies from twenty to thirty-five minutes, the greater part of which is consumed in the gradual escape of the cerebrospinal fluid, and the slow introduction of the serum, which enters entirely by gravity.

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[1] Hammond G M and Sharpe Norman The Treatment of Paresis by Injections of Neosalvarsan into the Lateral Ventricle The Journal A M A Dec 18 1915 p 2147

Others have used various modifications of this method, chiefly with the view of "saving time." One of these modifications has been the puncture of the ventricle by a sharp needle to which is attached a large syringe. The fluid is removed by suction, and the serum is then forcibly injected, the whole operation requiring only fifteen minutes. This procedure, which resulted disastrously in at least one instance, cannot be too strongly condemned. No surgeon of any experience in brain surgery would attempt the introduction of sharp instruments into the brain substance, and especially the forcible withdrawal and injection of fluids by means of a syringe into the lateral ventricle, where the consequences of a hemorrhage would be disastrous.

Another modification suggested requiring only from ten to fifteen minutes, is the perforating (under local anesthesia) of the scalp and bone (and occasionally the cerebral cortex) by means of a small drill, slightly larger than the ventricular cannula. Through this opening the cannula is blindly inserted into the ventricle; this procedure would be most dangerous. When one considers the number of large veins that are encountered in this area near the sinus, this method could be safely relied on to result disastrously in a certain percentage of cases. In our method, which consists of a 3/8 inch trephine opening under ether with incision of the dura, we obtain a clear view of the cortex and select a point free from vessels for the introduction of the cannula, thus avoiding the danger of cortical hemorrhage. By this method we have performed thirty-nine injections in this series of thirteen consecutive cases with no deaths and without any accidents. The patients are out of bed on the second day and ready to leave the hospital on the fourth day. All subsequent injections can be done under local anesthesia, the scalp being infiltrated over the original trephine opening, but we insist on incision of the scalp, and inspection of the cortex before introducing the ventricular cannula.

In some of our cases there has been a rise in temperature to 101 or 102 F. for from twelve to twenty-four hours following injection, with a corresponding increase in the pulse rate, but in no case have the reactions been such as to give rise to any anxiety.

Those cases in which, at the first injection, there has been found much fluid on the cortex or in the ventricle have shown the minimum of improvement following treatment, and we have come to look on the quantity of fluid found at injection of value as a prognostic factor.

In regard to the number of treatments necessary, the giving of only three injections has been purely arbitrary on our part, and was due to the marked clinical improvement following this number of treatments. As the laboratory data show, it will be necessary in some cases to give more than three injections, probably double this number. For example, in Case 12, in which the fluid Wassermann and colloidal gold reactions were strongly positive following the third injection, though the clinical improvement was marked, now, following the fifth injection (given since the tables were made up), the fluid Wassermann is negative and the colloidal gold reaction much reduced, and the clinical improvement continues. In two of the patients, in spite of the fact that they are apparently normal, and have been at work for over a year, the fluid Wassermann and colloidal gold reactions are now as strongly positive as before the first treatment. This has led us to place greater reliance on the clinical symptoms in determining improvement, and to suspect that in some cases the fluid syphilitic reactions, as has been found in blood reactions, may be unchangeable, even though the disease process has been eradicated.

TABLE 1.—RESULTS OF COMPLEMENT FIXATION REACTIONS*

Case	Blood Serums					Cerebral Fluids				Spinal Fluids				
	Before Treatment	After First Treatment	After Second Treatment	After Third Treatment		Before Treatment	After First Treatment	After Second Treatment	After Third Treatment	Before Treatment	After First Treatment	After Second Treatment	After Third Treatment	
3 A. M.	—	—	—			—	—		—		—		±	
4 B. P.	++++	++++	++++	++++		++	++++	+++		++++		++++	—	++++
5 J. B.	—	—	—		—	±	±	++++ (8 C.)		+++				++++ (8 C.)
6 J. M.				++++ (8 C.)						—			++++ (8 C.)	
7 W. v H.	—	—	—	++++			—		— (8 C.)	—			++++ (8 C.)	
8 J. McQ.	—		—			—	—			++++	+++			
9 J. B.	++++	++++	++++	++++		++++		++++			++++			
10 E. McC.	++++	++++				++++	++++					++++		
11 S. B.	++++	++	++			++++	—	—		++++	++++			
12 A. C.	++++	++++				++++	++++	++++		++++				
13 T. B.	++++		++++		++++	++++		++++		++++				++++

* The signs ++++, +++ and ++ mean that the reaction was positive, ±, doubtful, —, negative.

In our first cases we gave 0.6 mg. of salvarsan in blood serum. The dosage has gradually been raised so that now, as an initial dose, we give 1 mg. of salvarsan in salvarsanized serum, and have given 1.2 mg. This is three times the dose that can safely be given intraspinally. The reaction following 1.2 mg. has been no greater than that following 0.6 mg.; that is to say, practically nothing. It is impossible to say now what the maximum dose is that can be given safely. We intend to increase gradually the dosage in each succeeding case, and in this way perhaps reduce the number of injections necessary.

LABORATORY DATA

The laboratory work done in the conduct of this series of cases may be considered under two heads: (1) the preparation of the medicated serums, and (2) the examination of the patients' blood serums, and cerebral and spinal fluids.

The medicated serums were prepared simply by the addition of salvarsan or neosalvarsan to 40 per cent. serum in 0.9 per cent. sodium chlorid solution. In brief, the method is as follows:

Blood, to the quantity of from 40 to 60 c.c., is drawn by means of suction from a vein at the bend of the elbow into a sterile needle and tube. The blood is drawn usually late in the afternoon of the day before that set for the treatment The blood is incubated at 37 C over night It coagulates and the clot contracts On the following morning there is usually more than enough perfectly clear cell free serum available which is easily removed from the tube by means of a bulb pipet Twelve c c of the serum are transferred directly to a graduate 18 c c of sodium chlorid solution are added (making a total volume of 30 c c of a 40 per cent serum), and the graduate is immersed in a water bath at 56 C for thirty minutes Inactivation destroys complement serum enzymes and vegetative micro-organisms There should be none of the latter Any one who prepares serum should be certain of his technic After inactivation the serum is kept on ice until called for Just before use it is medicated by the addition of salvarsan or neosalvarsan The quantities used were usually fractions of a milligram from 0 6 to 0 9 A few doses of 1.2 mg were given with no untoward effect

Swift has determined that "the addition of salvarsan directly to serum produces a more potent mixture than results from the serum from blood to which salvarsan has been added in equivalent amounts" But still better is the mixing of "small amounts of salvarsan with the serum of a salvarsan treated patient He attributes the "increase in activity of salvarsanized serum produced by heating to 56 degrees C" as "due in part to the removal of inhibitory substances in the serum and, in part, to a direct increase of spirocheticidal power in the heated salvarsan"

We have heated our serums before the addition of the medication It is quite possible that the fluid changes (cell count, globulin content, Wassermann and colloidal gold reactions) would have been more marked if the serums had been heated after medication, and probably still more marked if the patients had received intravenous doses of salvarsan from half an hour to an hour prior to the bleeding The latter method we are now using

THE EXAMINATION OF THE BLOOD SERUMS AND OF THE CEREBROSPINAL FLUIDS

1 A small portion of the serum from the blood drawn for the preparation of the medicated serum was put aside each time and was submitted to the complement fixation test for syphilis

One set of tubes is incubated at 37 C for one hour The other set is placed in the ice-box, the temperature of which is about 8 C, for at least four hours, or, conveniently, overnight

The hemolytic system is then titrated to determine the unit of amboceptor Two tenths c c of a 5 per cent suspension is taken as the unit of blood cells, 0 1 c c of a 10 per cent solution as the unit of complement, and the amboceptor is so adjusted that 0 1 c c is sufficient to effect complete hemolysis in fifteen minutes at 37 C Two units of amboceptor are used in the tests

At the expiration of the period of incubation for fixation, 0 4 c c of sensitized cells is added The tubes are reincubated until the control tubes show complete hemolysis when the readings are made

We have found that the reaction with the cholesterinized antigen at 8 C is the most sensitive as it yields a larger percentage of positive results in known syphilitics than does any of the other reactions but we have found also that the reaction with the simple alcoholic extract antigen at 8 C is most reliable because it gives almost as many positive reactions in known syphilitics as does the former test and no positive results in doubtful cases in which a diagnosis of syphilis is possible but not highly probable

Cases 3 5 7 and 8 gave negative blood reactions before intraventricular treatment was begun The reaction has remained negative in Cases 3 5 and 8 Case 7 shows a ++++ reaction in the fourth column This I feel is simply an instance illustrative of the greater delicacy of ice-box fixation Cases 4, 9, 10, 11, 12 and 13 gave positive blood reactions before treatment In Cases 4, 9, 10 12 and 13 the test is still just as strongly positive In Case 11 there appears to be a diminution in the degree of positivity Except in Case 11 there is no evidence of any effect by this treatment on the complement fixation reactions of the blood serums in this series of cases

2 A specimen of the cerebral fluid was obtained just prior to each intraventricular injection For various reasons, some or all of the examinations were not made of some of the specimens Some of them were too bloody Some were delayed in transit from the operating room to the laboratory, and occasionally a specimen has been mislaid or lost in transit

There has been no regularity in the matter of lumbar punctures Those spinal fluids of which we have records were drawn in sporadic efforts to compare the findings in them with those of the cerebral fluids The results of such efforts have been so gratifying as to warrant our making spinal punctures a routine event at each admission The fluids were collected in three samples, so that usually one sample was blood free This specimen was employed in the tests The cell count was done as soon as possible after the fluid was drawn, usually within fifteen minutes An ordinary Thoma-Zeiss counting chamber with Zappert-

TABLE 2—CELL COUNTS AND GLOBULIN TESTS

Case	Cell Counts									Globulin Test*								
	Cerebral Fluids				Spinal Fluids					Cerebral Fluid				Spinal Fluids				
	Before Treatment	After First Treatment	After Second Treatment	After Third Treatment	Before Treatment	After First Treatment	After Second Treatment	After Third Treatment		Before Treatment	After First Treatment	After Second Treatment	After Third Treatment	Before Treatment	After First Treatment	After Second Treatment	After Third Treatment	
3 L M								12		+	±	+		++			+	
4 B I	2		40		2		4	1	1	±	++	+		+		+	±	±
5 J B	10	100			23				2	±	—			+				—
6 J M							5	10								±	+	
7 W vH		7	25		10	10	28					±		±	+	±		
8 J McQ			5				6				—			++	+			
9 I B	5					11				+		±			—			
10 F McC	5	15					110				—					±		
11 S B		7	12		20	20					±	—		±	+			
12 A C	40	10	11		22						±	±						
13 T B	10	20	11		24				23	++	±	±		++				+

* Positive globulin tests were indicated by ++ + ± negative by —

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2 Swift H. F Jour Exper Med 1916 24, 373

Ewing ruling was used, and no diluent or staining fluid was employed With a little practice it becomes an easy matter to differentiate the white cells from the occasional red blood cells, some of which are commonly found even in fluids which appear to the naked eye to be quite free of blood A proper regulation of the lighting of the preparation is the most important consideration A white light, preferably daylight, reflected by the plane surface of the mirror, is most satisfactory The iris diaphragm should be about three quarters closed Viewed with No 2 or No 4 ocular and No 3 objective (Leitz) or the low, dry objective of any other system, the white cells appear as little bits of mother-of-pearl in contrast with the red cells, which seem faintly yellow gray Some workers prefer to use a staining fluid, such as methylene blue or methyl violet

The "globulin" tests used were the phenol test of Pandy, the ammonium sulphate tests of Nonne and of Ross-Jones and the butyric acid-sodium hydroxid test of Noguchi The Pandy test is especially convenient A drop of the spinal fluid is added to 1 c c of a saturated aqueous solution of phenol (carbolic acid) The presence of protein is indicated immediately by the recurrence of a reaction ranging from a mere opalescence to a milky turbidity If the Pandy test is positive, the other tests are done, if negative, the others are omitted

"Globulin" tests are recorded thus strongly positive, + +, positive, +, weakly positive, ±, negative, — There is a large personal factor in reading globulin reactions, more so, perhaps, than in any other spinal fluid test

The technic of the complement fixation reaction done on the cerebrospinal fluid varied from that done on blood serum in only one respect The quantities of serums used were 0 04, 0 04, 0 04 and 0 08 c c The cerebrospinal fluid was employed in larger amounts, 0 2 c c was used with each antigen, and 0 4 c c for the control In other respects the tests were identical The spinal fluids were heated before use to avoid possible anticomplementary action

The records of the fluid findings are lamentably incomplete It is apparent in Table 2 that the cell count in the cerebral fluid may range from 5 to 190, in the spinal fluid from 5 to 140, that the cell count in the cerebrospinal fluid removed from the ventricle differs from that removed from the lumbar region of the spinal subarachnoid space (except in Case 2, at the first examinations), and that the difference is sometimes great It may be seen also that the globulin content ranges from — to + + in each fluid, and exhibits equal concentration in both fluids or unequal concentration These remarkable differences do not obtain with respect to the complement fixation reaction except in Cases 4, 8 and 11 In Case 8 the cerebral fluid gave a negative reaction and the spinal fluid a positive reaction, even before the institution of intraventricular treatment This is a rather striking phenomenon These findings are not isolated by any means They were confirmed, as, Oct 17, 1915, the spinal fluid gave a positive reaction, whereas, Dec 29, 1915, the cerebral fluid again yielded a negative reaction I have no record of a gold test in this case Case 11 exhibits a similar phenomenon Aug 23, 1916, the spinal fluid gave a positive Wassermann reaction, and the gold curve was that of paresis September 7, the cerebral fluid gave a positive reaction and a paretic curve On that date the patient had his first treatment October 7, his spinal fluid again gave a positive reaction and a paretic curve, but the fluid removed from the ventricle gave a negative complement fixation test and the indiscriminate syphilitic curve On the other hand, in Case 4, although before treatment and after the first and second treatments both fluids gave positive complement fixation reactions, after the third treatment the spinal fluid gave a negative test Jan 27, 1917, the spinal fluid gave again complete fixation

COMMENT

The alterations in the cell counts, subsequent to treatment, are not sufficiently striking or sufficiently uniform to warrant any general statement concerning the effect of these treatments on the cerebrospinal pleocytosis

The findings in the case of the globulin content are more susceptible to expression in a general statement The globulin content, both in the cerebral and in the spinal fluids, was definitely diminished by this treatment

The effect of treatment on the Wassermann reaction is not appreciable in Cases 2 and 11 In Case 4 the spinal fluid gave + + + + before treatment, + + + + after the second treatment, negative after the third treatment and + + + + again four months later Case 11 exhibits no change in the Wassermann reaction in the spinal fluid, but after the first treatment shows a change in that of the cerebral fluid from + + + + to —, which was found to be — after the second treatment also

There is an apparent increase in the strength of the Wassermann reaction in the cerebral fluid in Case 5 from ± to + + + + There is also an apparent change in reaction in the spinal fluids of Cases 3 and 6, in Cases 3, from — to ±, in Case 6, from — to + + + + These increases are probably only apparent, as the original determinations were made by the incubator method alone, the latter by the ice-box method as well The ice-box method is much more

TABLE 3—COLLOIDAL GOLD REACTIONS

Case		Cerebral Fluids				Spinal Fluids				
		Before Treatment	After First Treatment	After Second Treatment	After Third Treatment	Before Treatment	After First Treatment	After Second Treatment	After Third Treatment	
3	A M	55555554210	55421000000	55542100000			55553200000		55544221110	
4	B P	55554444220	55555422210	55542211000				54221000000	55555543220	55555555220
5	J B	00011100000	11100000000	00011100000		11111000000				22231111000
6	J M			55555552200					54222100000	55554322110
7	W vH				55555442100				23442211100	55555442100
8	J McQ									
9	J B			22210000000						
10	F McC	12221000000	12221000000					11112221100		
11	S B	55553222210	02211100000	55552100000		55555432110	55555532110			
12	A C	55555432100	55432100000	55555432100		55222222210				
13	T B		55555210000	55555555210		55443211000				55555443310

delicate in the detection of complement fixing bodies than is the incubator method

Cases 3, 4, 6 7, 11, 12 and 13 all gave typical paretic curves both with cerebral fluids and with spinal fluids In Cases 7 and 11, a transient effect was produced on the curves In Cases 3, 4, 6, 12 and 13 no appreciable change has been wrought in the colloidal reactions

The colloidal gold reaction appears to be a valuable aid in the diagnosis of syphilis of the central nervous system in particular of paresis The performance of the test is easy, requiring little apparatus, time or experience Although a satisfactory theoretical basis for the reaction has not been advanced, the test seems to be of great practical value

The preparation of the colloidal gold solution presents some difficulties to the beginner, but, in this as in everything else, persistent effort with careful attention to details is certain to be rewarded with success The essentials are chemically clean water and glassware and reagent chemicals

We have done the colloidal gold test on the fluids since November 1915 There is a record of a colloidal gold reaction in all cases except Cases 1 2 and 8 In Cases 5, 9 and 10 the gold reactions are not those of paresis I desire to lay no emphasis on the absence of the paretic curve in Case 9 because in that case we have the record of only one examination That test was made on the cerebral fluid after the patient had had two intraventricular treatments I should like to have had one or two more specimens of the fluids Patient 10 was a woman who died in advanced paresis but she had had intensive intravenous medication and some intraspinal treatment Such treatment, particularly the intraspinal has a pronounced effect on the gold curve Case 5, however, seems to me to be different The patient a man, had had no treatment except "pills" probably of red mercuric iodid I strongly suspect that this is a case of cerebrospinal syphilis in contradistinction to paresis*

SUMMARY

The blood serums, the cerebral fluids and the spinal fluids of eleven patients with paresis undergoing intraventricular treatment with neosalvarsanized or salvarsanized serum were examined at irregular intervals, before treatment, after the first treatment, after the second treatment and after the third treatment Some patients have been examined since after a lapse of from four to eight months The fluid changes were either nil or so slight as to be negligible in most instances

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Model House for Philippines—The director of health of the Philippines and his associates have designed a model house for the islands to overcome the sanitary and other shortcomings of the nipa material used for house construction The material used is fireproof and is composed of cement sand and nipa or husks of rice reinforced by bamboo This material is formed into shingles for the roof and slabs for the sides They are formed in molds and cured in water after being removed from the molds The cost of the model house made from this material is about $250, practically the same as for nipa construction, including the yearly repairs The life of the model house is about twenty-five years The advantages of this house are its better sanitary qualities, affording no harbors for vermin and insects, and its fire-resisting qualities, better ventilation, etc The health department has built several model houses, and will endeavor to have the new construction replace the old

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A REPORT OF THE USE OF DICHLORAMIN-T (TOLUENE-PARASULPHONDICHLORAMIN) IN THE TREATMENT OF INFECTED WOUNDS*

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The search for the perfect germicide began when Lister first applied the principles of Pasteur to the practice of surgery The perfect germicide should meet two simple requirements It must kill all parasitic life, while causing no harm to any cell of the living body

The problem has been partially solved for certain groups of infective agents all of which, however belong to the lower forms of animal life The infective agents more closely related to the plant kingdom, the bacteria, have shown a greater resistance to lethal agents than is possessed by the cells of the animal body, and therefore the great problem of surgery, the prevention and control of bacterial infection, remains only partially solved

The lethal effect of all the usual germicides on the animal cells, with the clinical result of retardation and inhibition of the natural processes of repair, have become so well recognized of late years that an attitude of antiseptic nihilism has existed Surgeons have developed a technic which has depended somewhat on soap water and alcohol, but chiefly on the natural bacterial resistance of the patient

In civil surgery, in which by far the large majority of the wounds were primarily clean this technic was usually sufficient to prevent the introduction of infective agents in numbers, or virulence, beyond the natural resistance of the patient, and in that small proportion of cases in which the primary wound was overwhelmingly infected, as acute suppurations and infected traumatic wounds clinical experience had shown that the small germicidal effect of practically all of the classical agents was nearly always overbalanced by their destructive action on the human tissues, so that the routine treatment consisted in mechanically removing the cause whenever possible, instituting drainage when indicated, and the subsequent constant or interrupted use of physiologic sodium chlorid solutions, thus trying to avoid the destruction of the human tissue cells without interfering with the processes of natural immunity and bacterial resistance

The demands made on surgery by the extensive suppurating wounds of modern warfare have reopened this question and made necessary a further search for an agent which would meet the requirements of a perfect germicide In military surgery the problem has not been one of the prevention of infection, asepsis, but up to the present, distinctly one of treatment of infection, antisepsis, for practically all military wounds, with the exception of a small proportion of bullet wounds, are virulently infected before coming into the hands of the surgeon

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* Read before the American Surgical Association Boston June 2, 1917 by Robert G Le Conte M D Philadelphia

The personal experiences of two of the writers working with both the English and French wounded, were the same as those reported by the majority of military surgeons, namely, with the exception of the chlorin preparations, all other antiseptic agents, in sufficient strength to be germicidal, hindered rather than helped in the control of suppuration and the process of repair

The results reported from the use of Dakin's and later Daufresne's modifications of Labaraque's solution are now known to every student of surgical progress and accepted by all those who have had the privilege of personally observing the work Yet there are certain objections to these chlorin-containing solutions which constitute real obstacles to their general use 1 The solutions currently used must be made with extreme care, and, being very unstable, it is almost necessary to have them freshly made daily 2 All of these chlorin solutions irritate the skin if they remain in contact with it for any length of time

The phenomenon of skin irritation is a definite obstacle to the use of these preparations, and in the experience of two of the writers there have been a number of cases in which the skin irritation, or burn as it is called, has persisted for months after the wound has healed The burning, itching and pain of these skin reactions are of such a degree that it has been necessary to find some means to prevent or at least minimize the phenomena At Compiegne and LePan, Dakin, Carrel, Dehelley and Depage have evolved a technic which will minimize this annoying irritation if carried out in its minutest detail, and from our personal experience, the success or failure of the method depends entirely on the degree of perfection with which the details of this technic are mastered and carried out

THE DAKIN-CARREL-DEHELLEY-DEPAGE TECHNIC

The Dakin-Carrel-Dehelley-Depage technic consists essentially in 1 The constant protection of all portions of the skin exposed to the chlorin solutions, or to the dressings containing the solutions, with vaseline This is usually applied on strips of sterile gauze 2 The use of very weak solutions of the hypochlorites Below 0 4 per cent of nascent chlorin the clinical effect of these solutions is nil, while above 0 5 per cent the irritating effect on the skin becomes serious Therefore a concentration of 0 48 per cent is usually employed By weakening the solutions in order to avoid skin irritation other problems are developed, the most difficult of which is that of making effective such minute quantities of a relatively weak germicide as is contained in a 0 48 per cent solution of hypochlorite Keeping the entire wound surface constantly moistened and in contact with the solution would seem to offer the maximum germicidal effect that could be expected, but the ease and rapidity with which these antiseptic substances unite with the protein and other substances in the wound exudate results in their rapid disappearance, in from thirty minutes to an hour, so that it is necessary not only to have the wound surfaces constantly in contact with the weak solutions, but also to provide for a frequent renewal of the solutions It is largely because of these reasons that in the technic of those who have obtained really satisfactory surgical results with weak hypochlorite solutions one sees such minute care exercised in complete and constant immersion of all the wound surfaces with frequent and regular renewal of the solution

In the Dakin-Carrel-Dehelley-Depage technic a constant immersion of all the wound surfaces is maintained by a complicated hydraulic system From a reservoir the solution is carried through a series of rubber tubes to every nook and cranny and fills the wound cavity just to the point of overflowing By means of stopcocks the solution in the wound cavity is renewed at will, and without necessarily changing the whole dressing The opening of a cock in the outlet tube from the reservoir flushes out the wound according to the principles of overflow, and leaves the cavity refilled with a fresh solution

If all the conditions of the Dakin-Carrel-Dehelley-Depage technic are carried out in the minutest detail, our experience has shown that infected wounds in military, industrial and civil practice can be sterilized in a remarkably short time, and when it is mechanically possible, such sterilized wounds can be closed, and they will heal as one would expect a sterile one to do While not minimizing the wonderful surgical opportunities such possibilities open up, for it would seem to us that it means the fulfilment of Lister's first vision of antisepsis, we do feel that this technic requires an unusual degree of painstaking care (not peculiar skill) on the part of the surgeon and the nurse, and it is not only time-consuming, but also demands unusual expense for both apparatus and dressings The concrete expression of this is seen in the large personnel and generous budgets at Compiegne and LePan When one realizes that this complicated technic has been devised primarily to avoid or minimize the skin irritation following the use of the hypochlorites, it certainly seems justifiable, and to us necessary, to search for another solution of the difficulty of skin irritation

THE PROBLEM OF SKIN IRRITATION

From investigations made by one of us (Dakin) as to the mode of action of the various hypochlorite preparations used in the treatment of infected wounds, it appears that when hypochlorites react with proteins of any kind, one of the first reactions consists in the formation of substances containing the NCl-group These products, which belong to the group of chloramins, possess marked bactericidal properties and are the active germicidal agents produced by the hypochlorites when they come in contact with the wound exudate[1] These chloramins are nonirritating to animal cells, and this explains the absence of irritation in the wounds, where the irritating free chlorin of the hypochlorite has been changed into chloramins and other nonirritating protein derivatives

It is quite simple to prepare these chloramins synthetically, and one of these substances in the form of a sodium salt of toluene-parasulphochloramin has been used quite extensively as a germicide and is now being sold under the trade name of chlorazene This synthetic chloramin is nonirritating to the skin and wound surfaces, and can be used in aqueous solutions in a concentration of 2 per cent, which has approximately four times the germicidal value of the currently employed solutions of hypochlorites

The desirability, however, of using strong concentrations of these germicides is clearly shown by the work of C. J. Martin and Miss Chick on the laws governing disinfection. They have definitely shown that a very complete analogy exists between ordinary chemical reactions and the process of disinfection, one reagent being represented by the disinfectant and the other by the protoplasm of the bacterium. If the act of disinfection is thus regarded as a chemical reaction proceeding with definite velocity, the successful use of germicides will depend on the establishment of conditions such that will permit the reaction to be pushed as far as possible toward completion in any given period of time. Maintenance of the active mass of germicide will obviously favor the course of disinfection. We have already referred to the difficulties encountered in maintaining an effective mass of germicide in the wound in the use of hypochlorites—and this is true to a lesser degree with the synthetic chloramins—because of the ease with which these substances unite with proteins and other compounds in the wound exudate and so lose their activity. By the use of an aqueous solution of synthetic chloramin of 2 per cent., we felt that a definite advance had been made in having a nonirritating germicide whose mass was four times that of the hypochlorites, but there was no improvement in the problem of maintenance, for in aqueous solutions these synthetic chloramins also disappeared rapidly in the wound exudate and had to be renewed at least every two hours.

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[1] Proc Roy Soc, 1916, B 89, 232

One obvious method of overcoming this objection of rapid disappearance of the antiseptic was to dissolve an excess of the substance in some medium which would not only contain the desired large concentrations but would also hold it over a long period of time, as in oil, so that the germicide would slowly diffuse into the surrounding medium and thus permit the use of a large mass of germicide which at the same time would act (be maintained) for a longer period of time than would be possible with aqueous solutions.

At present we have made use of a dichloramin, first prepared by Kastle, Keiser and Bradley,[2] and later by Chattaway,[3] the systematic name for which is toluene-parasulphondichloramin. We propose to give it the name dichloramin-T. As a solvent we have used eucalyptol chlorinated as described below with or without liquid paraffin, similarly chlorinated, to limit their decomposing action on the dichloramin-T.

The solutions are not permanent, especially in the presence of liquid petrolatum, but a 10 per cent. solution of dichloramin-T in eucalyptol may be kept in a colored bottle for at least one month with but 25 per cent. decomposition.

It may here be noted that these substances were first used by Dunham and one of us (Dakin) in experiments on nasal antisepsis which will be reported shortly.

We offer as a solution of the serious obstacle of skin irritation of the usual chlorin preparations a practically stable, nonirritating, synthetic double chloramin compound, toluene-parasulphondichloramin or dichloramin-T, this solution to be used in strengths varying from 5 to 10 per cent. (from twenty to forty times the mass of germicide ever present in the usable concentrations of hypochlorites) dissolved in a chlorinated oil in order that the germicide will be slowly liberated over a period of from eighteen to twenty-four hours instead of from thirty minutes to one hour, as with the hypochlorite solutions.

THE USE OF DICHLORAMIN-T

The technic of its application is simplicity itself, in contradistinction to that of Dakin, Carrel, Dehelley and Depage. After a careful surgical preparation of the wound at the primary dressing, and excision of all foci of infection and of devitalized tissues, the solution is applied on surface wounds with an atomizer in the form of a spray. In deep wounds the cavities are filled with the liquid. When dependent drainage exists because of the location of the wounds or when it has been purposely made, the lower opening is temporarily closed with gauze and then the cavity is filled with the oil, thus covering all the wound surfaces. The dependent drainage is then reestablished by removing the temporary gauze obstruction.

This privilege of dependent drainage cannot be practiced with the use of aqueous solutions and the Dakin-Carrel-Dehelley-Depage technic, in which the wound must act permanently as a basin to hold the weak solution. We feel that too much stress cannot be laid on this advantage.

We have found that it is necessary to apply the oil but once in twenty-four hours, and the wounds should be covered with only a few layers of gauze to avoid the absorption of the oil by the dressings.

The clinical phases of these problems have been developed at a special clinic organized at the Pennsylvania Hospital for the care of industrial accidents.

At first the Dakin-Carrel-Dehelly-Depage technic and the Dakin-Daufresne modified Labarraque's solution was used. The results in 160 completed cases treated during the first two months showed that the patients in this group, including wounds of the soft tissues, tendons, bones and joints were discharged recovered in one third the time required by the average of the other hospitals of the city. The comparison was made by means of insurance statistics. For the last two months, the complicated and expensive Dakin-Carrel-Dehelley-Depage technic has been replaced by the routine use of daily dressings of first 5 per cent. and later 7.5 per cent. of dichloramin-T in chlorinated eucalyptol and liquid petrolatum. In this last group of eighty-two completed cases the time required for healing was 16.3 per cent. less than in the former.

If we had only obtained as good results from this method as from the hypochlorites, the simplicity of the technic and the saving in dressing material, less than one third of the former amount being used, would have insured its replacing the former method.

PREPARATION OF DICHLORAMIN-T

The following details were worked out for Chattaway's method of preparation:

Chlorinated lime (from 350 to 400 gm.) of good quality is shaken with 2 liters of water on a shaker for half an hour and then the mixture allowed to settle. The supernatant fluid is siphoned off and the remainder filtered.

Powdered toluene-parasulphonamid, 75 gm. (the crude product may be used), is then added to the whole of the hypochlorite solution and shaken till dissolved. The mixture is filtered, if necessary, placed in a large separating funnel, and acidified by the gradual addition of acetic acid (100 c.c.). Chloroform (about 100 c.c.) is then added to extract the dichloramin, and the whole is well shaken. The chloroform layer is tapped off, dried over calcium chlorid, filtered and allowed to evaporate in the air. The residue is powdered, and dried in vacuo. It is sufficiently pure for most purposes without recrystallization.

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[2] Amer. Chem. Jour., 18, 491, 1896.

[3] Journal of the Chemical Society, London, 87 (1), 145, 1905.

The sodium toluene-parasulphochloramin which is sold under the trade name of chlorazene may be used instead of the toluene-parasulphonamid

A SECOND METHOD OF PREPARING DICHLORAMIN-T

Fifty gm of para-toluenesulphonamid are dissolved in 500 c c of water, and 100 gm of sodium acetate and 100 c c of chloroform are added The container is immersed in cold water, and a rapid stream of chlorin is passed in until the mixture is saturated The mixture is allowed to stand a few hours and, if the odor of chlorin disappears, more of the gas is passed in If necessary, more chloroform can be added to dissolve the dichloramin From this point the procedure is the same as in the preceding method

PREPARATION OF CHLORINATED EUCALYPTOL

Eucalyptol (U S P), not eucalyptus oil, must be used Five hundred c c are treated with 15 gm of potassium chlorate and 50 c c of concentrated hydrochloric acid After twelve hours the oil is well washed with water and sodium carbonate solution Dry sodium carbonate is added to the oil, and the mixture is allowed to stand twenty-four hours It is then filtered and dried with a little calcium chlorid

PREPARATION OF CHLORINATED PARAFFIN OIL

Five hundred c c of commercial liquid petrolatum are treated with 15 gm of potassium chlorate and 50 c c of concentrated hydrochloric acid The mixture is exposed to the light and allowed to stand over night It is then put into a separatory funnel, and washed successively with water, sodium chlorid solution, and water The opalescent oil is tapped off, a lump or two of calcium chlorid and 5 gm of charcoal are added, and the oil is filtered with suction

In order to determine the amount of liquid petrolatum which can be added to the eucalyptol solution of dichloramin-T, the following mixtures were made

Solution 1 1 part liquid petrolatum to 2 parts 15 per cent. eucalyptol solution

Solution 2 1 part liquid petrolatum to 1 part 15 per cent eucalyptol solution

Solution 3 3 parts liquid petrolatum to 5 parts 15 per cent eucalyptol solution

Solution 4 2 parts liquid petrolatum to 1 part 15 per cent eucalyptol solution

These solutions were placed in test tubes, stoppered tightly, and preserved in the refrigerator at about 0 C All solutions became somewhat turbid as soon as the liquid petrolatum had been added, but in forty-eight hours there was no appreciable settling out in any case After a week, however, the dichloramin-T had partially crystallized from Solutions 3 and 4 Solutions 1 and 2 were no more turbid than just after the addition of the liquid petrolatum, and none of the dichloramin-T had crystallized out

This experiment seems to justify the conclusion that no more than an equal part of liquid petrolatum should be added to a 15 per cent solution of dichloramin-T in eucalyptol when the solution is to be kept for any length of time, but when the mixture is to be used immediately, as much as two parts of liquid petrolatum to one of the 15 per cent eucalyptol solution may be used

We have used a solution made up of one part of liquid petrolatum and two parts of 15 per cent solution of the dichloramin-T in eucalyptol A larger proportion of the liquid petrolatum would make the mixture somewhat cheaper, but would have no other apparent advantage

One sample of chlorinated eucalyptol and two samples of chlorinated liquid petrolatum, one of which was chlorinated in the sunlight and the other on a cloudy day, were analyzed for chlorin by Carius' method with the following results

Chlorinated eucalyptol

0 1044 gm oil gave 0 0044 gm AgCl = 1 04 per cent Cl.

Liquid petrolatum chlorinated on a cloudy day

0 0936 gm oil gave 0 0052 gm AgCl = 1 37 per cent Cl.

Liquid petrolatum chlorinated in sunlight

0 1510 gm oil gave 0 0231 gm AgCl = 3 78 per cent Cl

The amount of chlorin which the oils take up is not large, but the amount absorbed is equivalent to a very considerable portion of chlorin which would be available from a 10 per cent solution of the dichloramin-T

CONCLUSIONS

In comparing the practical surgical value of dichloramin-T with aqueous hypochlorite solutions in the treatment of infected wounds, which in spite of many serious objections has given such promising results, we believe that our laboratory and clinical findings thus far warrant the following statements

1 Dichloramin-T is a nonirritating[4] synthetic germicide, and corresponds to the antiseptic chloramin substances found in minute quantities when nascent chlorin of the aqueous hypochlorite solutions is brought into contact with the exudate of suppurating wounds

2 Dichloramin-T can be used in strengths of from twenty to forty times greater than is possible with the hypochlorites and in an oily solution which makes possible the slow elaboration of the germicide over a period of from eighteen to twenty-four hours instead of a rapid disappearance in from thirty minutes to one hour as with the hypochlorites

3 Its use is as simple as the application of the tincture of iodin, and we can see no reason why it cannot be used to replace iodin as a primary dressing In our experience it is just as effective as a germicide, and is without the destructive effect on the tissue cells We have had the opportunity of using it in this way at the primary operation in seven wounds involving soft tissues, tendons, joints and bones and have not failed to have primary union One case, a compound fracture of a metacarpal with severed extension tendons, did not receive treatment until three hours after the injury

4 The chlorin in dichloramin-T, as in the hypochlorites, has the power of dissolving dead tissues Hemorrhage, therefore, must be stopped by ligation, else the clot will dissolve and secondary hemorrhage may follow

5 One should not depend on a chemical agent to perform, in the treatment of suppurating wounds, for that which can and should be done quickly and thoroughly by mechanical means Neither chemistry nor bacteriology can or should be expected to replace the mechanics of surgery At the best these chemical germicides can react only on the bacteria with which they actually come in contact, which means a very superficial process Therefore, at the primary operation all infected tissue, foci and devitalized tissues must be removed when possible by surgical procedures Finally, adequate drainage, dependent if indicated, must be provided

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[4] We have seen two cases of skin irritation after several weeks of continuous use It is similar to the eruption of ivy poison, and may be due to the eucalyptol

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The Needless Deaths of Peace—Osler in speaking recently of the needless deaths of peace, stated that in 1915 "while nine of our soldiers abroad died every hour to save their country, twelve babies died at home in the same time" He said of syphilis that it is an easy first among the ten best killers, and of the gonococcus, that although it is not a great destroyer of life, it is the greatest known preventer of life "With 30 to 40 per cent. of all cases of congenital blindness, with the chronic pelvic mischief in women, and with the unhappiness of sterile marriages, as a misery producer, the gonococcus is king among germs" He regards them as the most formidable enemies of the race, "entrenched behind the strongest of human passions and the deepest of social prejudices," but adds that the outlook is bright "as the public is being awakened, the state is intervening, and the changed heart of the people is allowing the sinner to get Christian treatment"

SODIUM SUCCINATE AND LEUKOCYTOSIS

EFFECT OF THE SUBCUTANEOUS ADMINISTRATION OF THE DRUG ON THE LEUKOCYTE CONTENT OF HUMAN BLOOD

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The literature dealing with the physiologic functions and reactions of succinic acid or its salts is far from justifying the possible significance that may be attributed to its constant and fairly widespread occurrence in animal tissues

The work that has been done seems to give rise to the idea that succinic acid takes an important part in the oxidations in the tissues Batelli and Stern[1] report on the relative oxidizing powers of various tissues with respect to succinic acid Thunberg[2] shows that the oxidative processes in muscle tissue are markedly influenced by the presence of this compound and from this Mathews[3] appropriately points out that the physiologic properties of succinic acid should be further investigated

As an introduction to additional work on the subject, a study was made of the effect of the subcutaneous administration of sodium succinate on the leukocyte content of human blood from normal and pathologic persons

The group of normal subjects was composed of four medical students apparently in good health The other group was made up of nine persons suffering from phthisis The majority of the latter patients had as a result of secondary infections a high original leukocyte count, and hence lent themselves nicely to a determination of whether or not the increase in leukocyte content observed in the normal subjects as the result of the administration of sodium succinate could be superinduced on that already present as the result of the pathologic condition

TABLE 1—EFFECT OF THE SUBCUTANEOUS ADMINISTRATION OF SODIUM SUCCINATE ON THE LEUKOCYTE CONTENT OF THE BLOOD OF NORMAL PERSONS

Subject	Normal Count		Count After First Dose		Count After Second Dose	
	Date	W B C	Date	W B C	Date	W B C
A	2/ 2 17 2/ 5 17	[illegible] 6 600	2/ 6/17 2/ 8/17 2/ 9/17 2/14/17 2/21/17	9 600 9 100 9,200 9,200 7 200	2/28/17 3/ 2/17 3/ 9/17 3/14/17 3/16/17	9,250 10,400 7 7[illegible]0 8,500 7 900
B	11/27/16 11/29/16	8 000 7,800	12/12/16 12 14/16	11 900 10 722	1/ 3/17 1/ 5/17	13 1[illegible]0 11,[illegible]00
C	3/ 1/17 3 [illegible]/17 3/ 7/17	7,220 7,[illegible]00 [illegible]000	3/14/17 3/16/17 3/23/17	10 000 9,200 7 750	3/28/17 3/30/17	8 [illegible]50 8 [illegible]00
D	9/12/16 9/14/16	8,[illegible]0 8,4[illegible]0	9/19/16 9/20/16 9/22/16	10,800 11 120 9,8[illegible]0	9/26/16 9/28/16 10/ 4/16	11 400 10 400 8 700

The time for making the tests was so arranged that the possibility of error arising from physiologic leukocytosis was minimized The leukocyte count normal for the individual was determined in all cases preliminary to the administration of the sodium succinate Within two or three days the first dose of the drug was given in the form of 0 1 c c of a 1 per cent solution subcutaneously From four to six hours later the first test count was made, and in the majority of cases subsequent tests were made at intervals of two or three days until the leukocyte content of the blood had so far reverted toward the normal that the increase due to the drug was confirmed Then a second administration of twice the quantity was made and the same procedure followed No untoward reactions were observed as the result of this method of procedure

TABLE 2—EFFECT OF THE SUBCUTANEOUS ADMINISTRATION OF SODIUM SUCCINATE ON THE LEUKOCYTE CONTENT OF THE BLOOD OF PATHOLOGIC PERSONS

Subject	Actual Count		Count After First Dose		Count After Second Dose	
	Date	W B C	Date	W B C	Date	W B C
A	[illegible]	[illegible]	[illegible] [illegible]	[illegible] [illegible]	[illegible] [illegible] [illegible] [illegible]	[illegible] [illegible] [illegible] [illegible]
B	[illegible]	[illegible]	[illegible] [illegible]	[illegible] [illegible]	[illegible]	[illegible]
C	[illegible]	[illegible]	[illegible] [illegible] [illegible]	[illegible] [illegible] [illegible]	[illegible] [illegible] [illegible]	[illegible] [illegible] [illegible]
D	[illegible]	[illegible]	[illegible] [illegible]	[illegible] [illegible]		
E	[illegible]	[illegible]	[illegible]	[illegible]		
F	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] [illegible] [illegible]	[illegible] [illegible] [illegible]
G	[illegible] [illegible]	[illegible] [illegible]	[illegible] [illegible] [illegible]	[illegible] [illegible] [illegible]	[illegible] [illegible]	[illegible] [illegible]
H	[illegible] [illegible]	[illegible] [illegible]	[illegible] [illegible] [illegible]	[illegible] [illegible] [illegible]		
I	[illegible]	[illegible]	[illegible]	[illegible]		

In Table 1 will be found the figures representing the results of these experiments on the normal subjects Table 2 contains the demonstration of the effect of this treatment on the leukocyte content of the blood in the pathologic cases

From these tables it will be seen that in the normal subjects the subcutaneous administration of sodium succinate invariably produced an increase in the leukocyte content of the blood, ranging from 30 to 70 per cent, and that in the group of pathologic persons 66 per cent showed an increase ranging from 20 to 40 per cent There is apparently no relationship between the initial leukocyte count and the percentage of increase caused by the drug It is evident that one of the physiologic reactions to sodium succinate is an increase in the cellular mechanism of defense for the organism How much this is concerned with the body oxidation processes is a subject for further study

CONCLUSIONS

The subcutaneous administration of sodium succinate in doses of 0 1 c c of a 1 per cent solution causes an increase in the leukocyte content of the blood of both normal and pathologic persons

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[1] Batelli F and Stern L Compt rend Soc de biol, 1910, 69, 370 554 Biochem Ztschr 1910 30, 172

[2] Thunberg Skand Arch f Physiol 1911 25, 37

[3] Mathews A P Physiological Chemistry, Ed 2 New York 1916 p 611

THE INCIDENCE OF PHOSPHATIC URINARY CALCULI IN RATS FED ON EXPERIMENTAL RATIONS[*]

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During the early years of our investigations on the nutrition of rats a number of our experimental animals showed on necropsy the presence of calculi in the kidneys or bladder These calculi ranged in number from one to a hundred or more, and in size from particles no larger than the head of a pin to large stones which filled the entire kidney, leaving only a thin wall of tissue surrounding the concretion The number of such cases gradually diminished until during the last two years we have failed to find this condition among our rats In view of these facts and the additional experience that none of our stock animals was ever found to be affected in this way, it became a matter of some interest to attempt to correlate, if possible, the appearance of these calculi with the diets on which the animals had been fed

The foods which are furnished to the experimental rats here concerned have consisted of more or less isolated food materials mixed in proportions somewhat as in the accompanying tabulation

PROPORTIONS OF FOOD MATERIAL

	Per Cent.
Protein	18
Starch	27
Natural" or artificial protein free milk"[1]	28
Fats (either lard or butter fat, or both)	27

Such rations were calculated to supply the necessary energy in the form of suitable protein, carbohydrate and fat The required inorganic nutrients were furnished by the "protein-free milk" When this was a "natural" product prepared directly from milk, it supplied the water-soluble vitamin now regarded as essential for adequate nutrition In addition to this, a second dietary factor soluble in fats and furnished abundantly by butter fat, but not by lard, is at present believed to be required

Inasmuch as nearly all of the proteins which have been employed in our experiments are represented among the rations of the affected animals, it is unlikely that the nature of the protein has been a determining factor in the production of calculi The character of the carbohydrates and inorganic salts, the balance of acid-forming and base-forming foods, or a possible lack of water-soluble vitamins can also be eliminated as causes of the trouble, for the rats receiving the natural "protein-free milk" in their food were quite as subject to the disease as those receiving various artificial salt mixtures

It is a striking fact that of the eighty-one cases of calculi which we have discovered in 857 necropsies, thirty-five (43 per cent) of the rats had never received butter fat or any other source of the fat-soluble vitamin in their rations Of the remaining forty-six cases, none of the animals had received food known to furnish such a vitamin during the entire course of the experiment, and only thirteen had this substance during more than one-half of the period in which they were on an experimental diet When milk or butter fat was furnished at all in these instances, it was usually fed either for a short period at the beginning of the experiment, or as a means of realimenting a rat which had been depleted by feeding either a fat-free or a lard-containing diet In four of the cases milk food was fed in alternation with a food deficient in one or more respects, for the purpose of keeping a stunted animal in good nutritive condition for a long time[2] In all of these cases it is quite possible that the calculus formation started during the period when the animal had no milk or butter fat in the diet, and the subsequent addition of this factor was unable to prevent the development of the disease or lead to a solution of already formed calculi In other words, *in every instance where calculi developed, the animals were without an adequate source of the fat-soluble vitamin for some time* During the last few years our animals have, as a rule, been supplied with a liberal quantity of the fat-soluble vitamin throughout the entire period of their experimental feeding, which may account for the fact that none of them have developed calculi at any time

According to a report of the Public Health Service on "The Rat and Its Relation to the Public Health,"[3] "the bladder of rats very frequently contains very irregularly shaped, rough, somewhat branching concretions These concretions are rather soft and tough and are dirty white in color" Well marked vesical calculi also have been reported "In one case twenty-one smooth round stones which completely filled the bladder were found The total weight of the stones was 3 8 grams In another case six calculi were found, the total weight of which was 7 8 grams, the largest one weighing 5 grams In a third case eight smooth, round stones weighing 1 7 grams were found, the largest of which weighed 0 6 gram The last two cases were female rats, the sex of the first was not recorded In each of these cases the bladder showed to the naked eye very marked evidence of inflammation The mucous membrane was reddened, villous, and covered with tenacious mucus In one case in which microscopical examination was made the mucous membrane was found to be covered with pus cells, the surface layers of which were undergoing degeneration"

The calculi observed in our experimental animals were, as already mentioned, of variable size, and distributed in various parts of the urinary tract They were light in color and generally spherical in form The total weight of concretions from a single rat sometimes exceeded 5 grams The incidence of the calculi was about equal between the two sexes (39 females, 42 males)

Repeated chemical examination of specimens showed them to be characteristic phosphate calculi An illustrative analysis of a kidney concretion weighing 1 5 grams, gave the following results Loss on drying, =25 8 per cent Composition of the dry residue P=89 Ca=12 1 Mg=2 6 per cent

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[*] From the Laboratory of the Connecticut Agricultural Experiment Station and the Sheffield Laboratory of Physiological Chemistry in Yale University, New Haven The expenses of this investigation were shared by the Connecticut Agricultural Experiment Station and the Carnegie Institution of Washington, D C

[1] The descriptions of these products, which include all the essential inorganic ingredients of the diet, will be found in Carnegie Institution of Washington, Publication 156, Part II, Ztschr f physiol Chem, 1912, **80**, 307, and *Jour Biol Chem*, 1913, **15**, 311 Sometimes these were replaced by a mixture of inorganic salts (Salt mixture I, Carnegie Institution of Washington, Publication 156, Part II, p 80) to the amount of 2 5 per cent together with lactose or sucrose

[2] Osborne, T B, and Mendel, L B *Jour Biol Chem*, 1914, **18**, 95 Chart IV is a typical illustration of this method of stunting

[3] The Rat and Its Relation to the Public Health, U S P H and M H S, 1910, p 63

Some carbonate was present Oxalates and uric acid were absent, but the stone contained a small amount of a mucus-like substance These data correspond with what might be expected for a concretion consisting essentially of insoluble phosphates of calcium and magnesium

According to the most likely current conception of the genesis of such calculi[4] they may be assumed to arise because of changes in the composition of the urine brought about by infection and consequent ammoniacal decomposition If it is asked what connection may be assumed to exist between the diet predisposing to the calculi and the possible infection of the urinary tract, we recall the inevitable nutritive failure, sooner or later, of all of our experimental animals which have not had an adequate supply of the fat-soluble vitamin This outcome of a physiologically inappropriate diet may be associated with a general decrease in immunity to bacterial infection such as is exemplified by a form of infectious eye disease which is prevalent among animals inappropriately fed and which is speedily alleviated by the introduction of butter fat[6] cod liver oil[7] and certain other animal fats[8] into the experimental rations

We cannot offer any rigid proof of the etiologic relationship between the rations deficient in fat-soluble vitamin and the formation of phosphatic calculi The impressive statistical fact that *in every case* where the calculi were observed the animal had existed for some time on a diet of the sort indicated together with our failure to discover any other pathogenetic factor common to all the affected animals, makes the hypothesis suggested above worthy of serious consideration

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[4] Compare Wells H G Chemical Pathology 1914 p 414
[5] Compare Knapp Ztschr f exp Path 1908 5 147
[6] Osborne and Mendel Jour Biol Chem 1914 **16**, 423
[7] Osborne and Mendel Jour Biol Chem, 1914 **17** 401
[8] Osborne and Mendel Jour Biol Chem 1915 **20** 379

The Bitter Tonics—The bitter tonics are common home remedies' and favorite drug-counter prescriptions" They are given to convalescents who would continue to improve, tonic or no tonic, and the tonic not the recuperative power of the patient, gets the credit or the physician prescribes a more hygienic living and a tonic. The health improves, and both physician and patient think the tonic did it But even if the bitters have no direct action on gastric secretion and digestion, and no appreciable indirect action on the secretion of gastric juice, may they not be valuable aids in expelling worry and implanting hope and good cheer in the *mind* of the patient? May they not be an efficient handmaid to psychotherapy? There is no question that the bitter tonics connect up with the popular belief that the potency of a medicine is directly related to its strong (or bad) taste And the readiness with which these tonics are dispensed nourishes the popular superstition that there is or must be, a specific drug remedy for every ailment, a superstition that constitutes the chief aid of the medical quack and the 'patent medicine" vender The stimulation of certain nerve-endings in the mouth and in the normal gastric mucosa unquestionably contributes to the complex sensation of appetite, and these nerves are stimulated by condiments and flavors of food Apart from this, *the physiologic way of augmenting hunger and appetite is moderation in the food intake or increasing the utilization of the food in the body by outdoor living, fresh air, cold baths and physical work* If these measures do not improve appetite and hunger, the chances are that the digestive tract is not in a condition to take care of the amount of food demanded by stronger hunger and appetite sensations—The Control of Hunger in Health and Disease, A J Carlson

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A STUDY OF EXOPHTHALMIC GOITER FROM THE POINT OF VIEW OF THE BASAL METABOLISM

WITH REMARKS CONCERNING THE EFFECT OF VARIOUS FORMS OF TREATMENT*

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During the last two years and a half an investigation of the basal metabolism in thyrotoxicosis has been carried out at the Massachusetts General Hospital It was our original intention to report these data fully in a more technical paper first and subsequently to discuss the clinical aspects of the work in a general paper Since it now seems probable that we shall be unable to publish our work in detail until after the war, and since certain conclusions have been drawn which we believe will be of interest to clinicians, we are submitting at present an outline of our work, together with a discussion of the results obtained

The manifestations of overactivity of the thyroid gland are numerous Besides the well recognized features such as tachycardia nervousness, loss of weight and tendency to increased sweating, a rise in the general heat production, or, as it is now commonly called the basal metabolism, practically always occurs Moreover, while a rise may be likewise found in a few other pathologic conditions, it is less marked, and is found in conditions easily differentiated from hyperthyroidism So it seems fair to say that a rise in the basal metabolism is not only a constant feature, but is one of the most striking and characteristic manifestations of thyroid overactivity Important work on the basal metabolism in exophthalmic goiter has been reported by Du Bois,[1] and the literature on the subject is reviewed in his paper

To judge accurately the intensity of the intoxication, a quantitative measurement of some sort becomes necessary The pulse and weight of course can be measured quantitatively, but as we shall show below, a very false impression of the toxicity may be obtained from these alone It was for this reason that we undertook an extended study of the basal metabolism in various types of toxic goiter

For a discussion of the methods used the reader is referred to various previously published papers[2] It will suffice to say here that the patient s heat production is determined by calculation from his gas exchange The latter is determined by means of Benedict's respiration apparatus[3] The method of calculation, called indirect calorimetry, is thoroughly discussed in the paper of Williams, Riche and Lusk[4] By indirect calorimetry the number of calories produced can be calculated, provided the oxygen absorption and the carbon dioxid output are known

To compare fairly the heat production of one individual with that of another, their lowest level of

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* From the Medical Service of the Massachusetts General Hospital aided in part by a grant from the Proctor Gift Harvard University

[1] Du Bois E F Metabolism in Exophthalmic Goiter, Arch Int Med, June 1916 p 915

[2] See for example
Palmer, Means and Gamble Jour Biol Chem, 1914, **14**, 239
Means Jour Med Research, 1915, **27** 121
Means Boston Med and Surg Jour 1916, **174**, 864

[3] Benedict Deutsch Arch f klin Med 1912 **107**, 160

[4] Williams Riche and Lusk Jour Biol Chem, 1912, **12**, 349

metabolism should be used Hence the term "basal metabolism" The determination of this is made by having the patient in a postabsorptive condition (fourteen hours or more after food) and at complete muscular rest, for both muscular work and food increase the metabolism

Our procedure, then, has been to obtain the gas exchange of the quiet, fasting patient with the respiration apparatus, and from that to calculate his heat production in calories per hour We then divide this by his body surface, for the heat production of normal individuals has been shown to be proportional to their areas We obtain the surface area by Du Bois' formula from the height and weight[5] This gives us the calories produced per square meter of body surface per hour The basal heat production of normal individuals is very constant It varies slightly with age and sex A set of standards of the normal metabolism will be found in a paper by Aub and Du Bois[6] In all the present work we have handled our data as follows The basal calories per square meter per hour are divided by the appropriate normal standard for individuals of the patient's age and sex, and the percentage variation from the normal thus found So in the following pages if the metabolism is said to be + 100 per cent it would mean that it is twice the normal, and — 50 per cent would mean one-half the normal

At the present time we have made 224 observations of the basal metabolism in fifty-seven cases of true toxic goiter, and twenty observations in eighteen cases of nontoxic goiter We have also made thirty-seven observations in thirty-two borderline cases, as well as about thirty-five single observations in control cases, normal and pathologic[7] Each observation requires about three quarters of an hour's time for an observer and an assistant

The first point which we wish to bring out is that the toxicity as judged clinically runs very nearly parallel with the rise in the metabolism This is well shown in Chart 1, in which we have plotted the first observation in all our toxic and nontoxic goiter cases The clinical impression as to the degree of toxicity is indicated by a series of plus signs, one sign meaning slightly toxic, two moderately toxic, and three very toxic The average curve shows that in the clinically nontoxic cases there is essentially a normal metabolism, in the mildly toxic, an average rise of 43 per cent, in the moderately toxic, an average rise of 53 per cent, and in the very toxic, an average rise of 76 per cent The highest metabolism observed was + 118 per cent It will also be seen in this chart that of all the patients who clinically had hyperthyroidism, all but one had a rise of more than 25 per cent, and of those cases that were clinically nontoxic goiter, only one, a questionable case, had a rise of more than 17 per cent in the basal metabolism The metabolism studies at the Russell Sage Institute seem to indicate that the normal metabolism varies within a range of plus or minus 10 per cent from the average, and that any subject exhibiting a variation of more than 15 per cent is distinctly abnormal Our clinically toxic cases, then, with one exception, fall in the pathologic group from the metabolism point of view, and of the clinically nontoxic cases 80 per cent fall within the normal zone

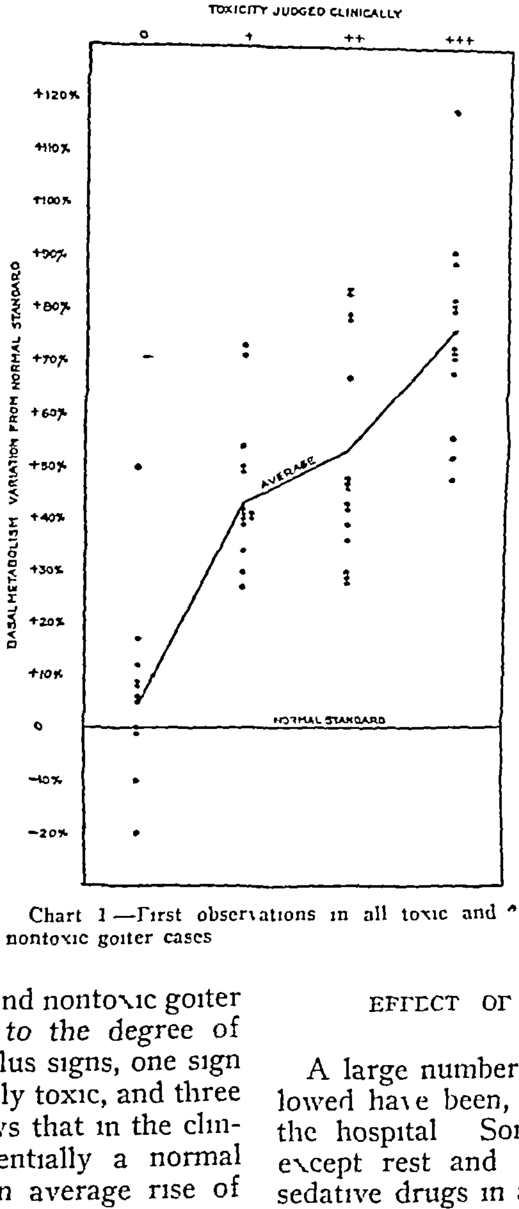

Chart 1 —First observations in all toxic and nontoxic goiter cases

We believe that the corrollary of this relationship is that the rise in basal metabolism furnishes an accurate index of the degree of toxicity in hyperthyroidism, and that, in fact, it amounts to a functional test of the thyroid gland, and it is from this point of view that we have used it

Our purpose, then, has been to observe as large a series of cases of thyrotoxicosis as possible, and over as long a period of time as possible, getting observations of the basal metabolism from time to time as a criterion for judging the severity and course of the disease and the effect of various methods of treatment[8]

The chief therapeutic agents which have been studied are complete rest in bed, surgery, the Roentgen ray, and to a lesser extent, the effect of a few drugs We have many observations on the first three, in cases of varying degrees of severity, and in a number of instances the observations extend over a period of a year or more The effect of drugs has been studied in some cases in short periods, but nearly always in conjunction with rest, so that no very crucial test of the drug action has been carried out It would be well to obtain extended observations on the effect of quinin hydrobromid, without other treatment, but we considered the effects of rest, surgery and the Roentgen ray more important and so studied them first

EFFECT OF REST ALONE AND OF REST PLUS DRUGS

A large number of the patients whom we have followed have been, for a time at least, bed patients in the hospital Some of these received no treatment except rest and forced feeding, others were given sedative drugs in addition It was found that a large percentage of the cases, whether mild or severe, showed a very marked fall in the metabolism on rest alone, or on rest plus drugs, as also shown by Du Bois This fall usually occurred over a period of from one to three weeks, when a level, or plateau, was reached In Tables 1 and 2 we give data on two groups of cases the first group being those in which we were able to observe the effect of complete rest alone and the second group where in addition to complete rest the patients receive quinin hydrobromid in the usual dosage The first observation in this table was secured after the patient had been in the ward for a few days the second anywhere from one to three weeks later, the patient having had complete rest in bed in the interim

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[5] Du Bois Delafield, and Du Bois, E F A Formula to Estimate the Approximate Surface Area if Height and Weight Be Known, Arch Int Med, June, 1916, p 862

[6] Aub, J C, and Du Bois, E F The Basal Metabolism of Old Men, Arch Int Med, May, 1917, p 831

[7] This does not include observations already published

[8] We shall postpone the discussion of the results obtained in the borderline cases and the value of the metabolism determination for purposes of diagnosis until our complete work is reported We might say here, however, that in cases in which it is uncertain whether any hyperthyroidism exists, a determination of the basal metabolism is undoubtedly of great importance

Tables 1 and 2 show a drop of more than 20 per cent in the basal metabolism in eleven out of sixteen cases treated by rest alone or by rest plus quinin hydrobromid over a period varying between one and three weeks The average drop in the cases treated by rest alone was 17 per cent, and of those who also received quinin hydrobromid was 19 per cent In other words the patients not receiving the drug showed practically as much reduction as those who did Moreover, the series not receiving the quinin hydrobromid as a group, were more toxic than those that did Two cases after the complete effect from rest had been obtained showed no added effect from quinin hydrobromid From these observations then we conclude that rest alone usually causes a decrease in thyrotoxicosis, as shown by the basal metabolism, and also that this decrease is not accelerated by giving quinin hydrobromid

TABLE 1—TOXIC GOITER EFFECT OF COMPLETE REST ALONE

Case Number	Basal Metabolism Percentage Variation from the Normal	
	First Observation	Second Observation (From 1 to 3 Weeks Later)
10	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
111	[illegible]	+82
1[illegible]1	+10[illegible]	+81
1[illegible]	+71	+61
1[illegible]1	[illegible]	[illegible]
Average	+81	+67

We have made scattered observations on other drugs, such as veronal, paraldehyd, triple bromids, etc, and in no instance have we found any fall in metabolism which could not be explained as the result of rest

EFFECT OF THE ROENTGEN RAY[9]

We have had an opportunity to study the effect of the Roentgen ray in exophthalmic goiter quite extensively In Table 3 we have collected the data in all cases that we have been able to follow from the time before the patients had any treatment Observations have been made on a number of others, chiefly to see whether they had had sufficient treatment The irradiation was done at intervals of about three weeks, and each treatment was a maximal exposure, the thymus as well as the thyroid was exposed Some of the patients had no treatment except the Roentgen ray, and continued at their normal occupations This was true in Cases 12, 25, 33, 66, 107 and 120 Of these, Patient 12 after six, and Patient 107, after four treatments, showed no improvement, Patient 12 was a housewife with a long-standing toxic, nonexophthalmic goiter, Patient 107 a housewife with a return of toxicity following partial thyroidectomy several years before Patient 33, a young man, showed a remarkable improvement after six treatments He had absolutely no treatment but the Roentgen ray, and when last seen was following his trade, that of a barber, and serving on the jury at the same time Patient 66 a young schoolmistress, showed a marked improvement in spite of the fact that she continued at her work, which involved teaching a roomful of small children daily Patients 25 and 120 showed some improvement, but were not cured when last seen

TABLE 2—TOXIC GOITER EFFECT OF REST PLUS QUININ HYDROBROMID

Case Number	Basal Metabolism Percentage Variation from the Normal	
	First Observation	Second Observation (From 1 to 3 Weeks Later)
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	+47
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	+44
[illegible]	[illegible]	+71
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	+67
Average	[illegible]	[illegible]

Of those who had rest in addition to the Roentgen ray Patients 10 53, 93, 111, 121 and 123 showed either no improvement or else no more improvement than might be explained on the basis of rest Patient 21 a young woman with moderately severe exophthalmic goiter, showed no improvement with complete rest plus three Roentgen-ray treatments but after the fourth, although she had resumed her normal life, she showed a marked improvement Patient 48 probably was improved by the Roentgen ray, for although she had complete rest at the onset, on returning home and resuming her usual life (housewife) she continued to improve with prolonged irradiation Patient 110, a social worker, with moderately severe exophthalmic goiter, showed a greater improvement than could be ascribed to rest alone, and after the fifth treatment had a normal metabolism with practically no symptoms, although she had resumed her work Patient 113 also showed considerable improvement after her third treatment, although she had had no rest up to that time

TABLE 3—TOXIC GOITER EFFECT OF ROENTGEN RAY

Case No	Basal Metabolism Percentage Variation From the Normal											
	Before Treatment	Number of Treatments										
		1	2	3	4	5	6	7	8	9	10	11
10	+65	+5[illegible]									+55†	
12	+4[illegible]§						+46§					
21	+50		+53	+50		+13*						
25	+85				+61§				+63§			
33	+75§				+51†		+14§					
48	+8[illegible]	+61	+61*				+[illegible]1§					+20§
53	+45§					+57*		+60				
66	+4[illegible]§				+23§		+13§	+28§				
93	+40			+37	+8	+37						
107	+41§			+21§	+31§							
110	+42	+2[illegible]	+21	+17*		−1§						
111	+83	+57	+87		+8[illegible]†							
113	+77§		+48§		+30							
120	+71*		+56*		+45§							
121	+81	+81	+71	+107†	+70†	+58						
123	+74†	+34	+58			+73§						

* Complete rest in hospital ward
† Complete rest outside hospital
Partial rest outside hospital
§ Leading usual life

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[9] The Roentgen ray treatments were given by Dr A F Merrill, whom we wish to thank for his kind cooperation

From these observations we conclude, first, that in certain cases, particularly the less severe ones, the Roentgen ray alone may cause a definite decrease in the metabolism, in fact, that it may be brought to normal, secondly, that in certain cases treated by rest plus the Roentgen ray there has been more improvement than can be accounted for by rest alone, and thirdly, that in other cases usually severe in type, there is not the slightest improvement, even though complete rest is combined with prolonged irradiation

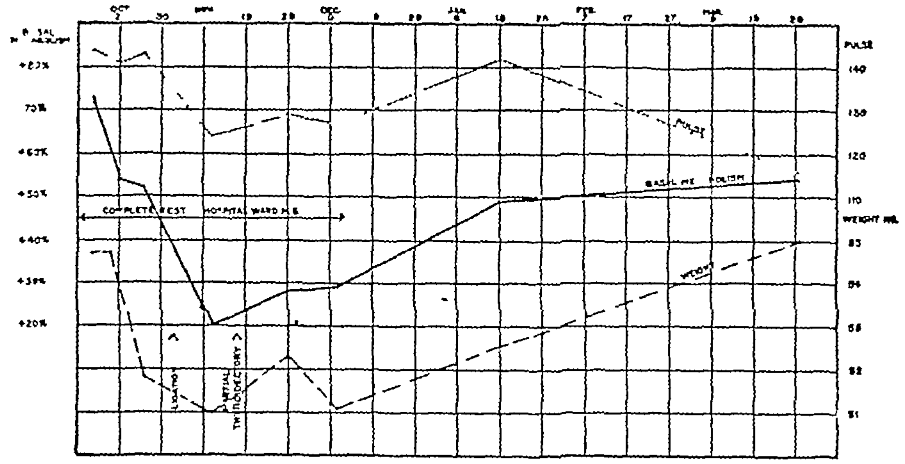

Chart 2 —Course in Case 88

THE EFFECT OF SURGICAL PROCEDURES

Observations before and after partial thyroidectomy are shown in Table 4 In twelve cases observed just before and shortly after operation, a striking fall in the metabolism occurred in every one, also many of these patients had had prolonged rest in bed before operation, and had had the maximum drop from rest alone, had, in other words, reached a plateau before operation In four of these, however, the metabolism subsequently rose again, in three cases the metabolism returned to normal and remained there Some late results of operation are shown in Cases 3 and 16, both of which were still very toxic more than a year after operation Cases 88 and 99 also showed a higher metabolism several months after operation than they did before As to the effect of ligation of the thyroid arteries, we can say but little, having observations before and after this procedure in only two cases In one of these the metabolism fell from + 52 to + 20 per cent, and in the other from + 50 to + 39 per cent, after ligation of the superior arteries Du Bois, however, has made several observations on ligation, and found very little late effect

Our series comprises observations on twenty patients treated surgically Of these five died after operation It is interesting to note that in three of these five, in whose cases more than one observation was secured previous to operation, the metabolism was rising, although the patient was having complete rest in bed at the time The metabolism of all but two of the patients who recovered was either falling or level at the time the operation was done

From these results we conclude, first, that the early effect of either ligation or partial thyroidectomy is usually a marked decrease in toxicity, as indicated by the fall in metabolism, second, that while this improvement sometimes is maintained, it also often is not, and some patients may become quite as toxic, or more toxic, than they were before they were operated on

ILLUSTRATIVE CASES

We give the histories briefly, and show charts, of three cases which illustrate certain points

Case 88—A year ago the eyes of an unmarried woman, aged 22, with unimportant family and past history began to be prominent, her neck became full, and the usual symptoms of exophthalmic goiter came on gradually and have been getting progressively more marked She had done no work for a year and had had four Roentgen-ray treatments between July and October, 1916, without improvement She entered the medical wards of the Massachusetts General Hospital, Oct 11, 1916 Physical examination at that time revealed well marked eye signs, considerable soft symmetrical enlargement of the thyroid with a loud systolic bruit, fine tremor of tongue and fingers, and warm, moist hands The heart was somewhat enlarged to the left, very rapid, and there was a systolic murmur heard over the entire precordium

The subsequent course of the case can best be followed in Chart 2 On complete rest in bed without other treatment, the metabolism fell from + 73 per cent to + 52 per cent

TABLE 4—TOXIC GOITER EFFECT OF PARTIAL THYROIDECTOMY

Case No	Basal Metabolism Percentage Variation From the Normal				
	Few Days before Operation	1 to 2 Weeks after Operation	3 to 6 Weeks after Operation	2 to 7 Months after Operation	18 to 24 Months after Operation
3	+73		+62		+49
16	+30				+45
51	+40		+ 2	+19	
71	+40	+15	+36	+20	
83	+36	+30	+ 8		
88	+52	+28	+29	+54	
93	+37	+ 5	+ 4		
99	+42		+39	+40	
106	+60	+ 7		+ 5	
117	+41	+13	+27	+31	
121	+58	+15			
125	+60	+35	+34	+27	
126	+44	+14	+19	+20	
130	+22			+28	
137	+46	+34	+67		
143	+32	+19	+13		
151	+57	+35			

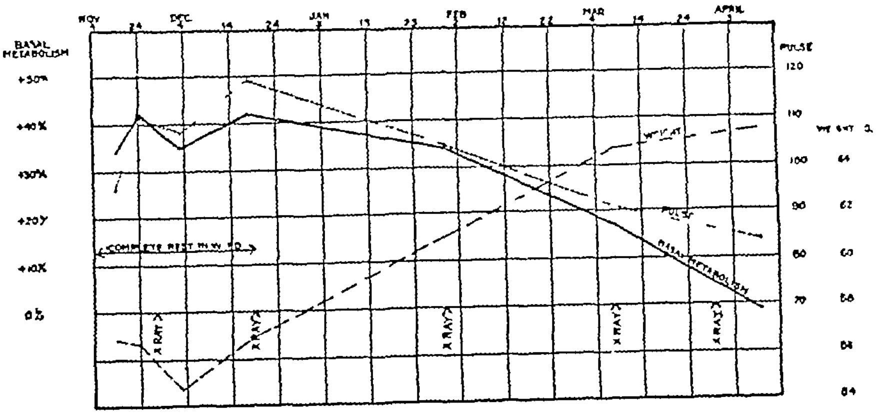

Chart 3 —Course in Case 110

November 2, the left superior thyroid artery was ligated by Dr C A. Porter under local anesthesia Ten days afterward the metabolism was only + 20 per cent

November 17, Dr Porter did a partial thyroidectomy (right lobe) under gas and oxygen The patient stood the operation well Pathologic examination of the thyroid revealed a typical follicular hyperplasia Following the second operation, the metabolism remained about level up to the time when the patient went home, being just below + 30 per cent

The important point that this case illustrates is the rise in the metabolism after the patient left the hospital. Although she felt well when seen in the middle of January and at the end of March, she still looked toxic, and it will be seen that her metabolism was rising. This in our opinion constitutes a definite indication for further treatment, either surgical or with the Roentgen ray.

We stated before that the weight and pulse were not the best indexes of toxicity and this case indicates this point well. It will be seen, for example, that before operation although the toxicity was decreasing the patient was losing weight, while after the operation the reverse is true. Likewise after the operation the pulse fell though the toxicity as judged by the metabolism rose. In regard to the pulse we think the discrepancies are due to the fact that tachycardia is not a pure sign of hyperthyroidism but is in part due to the actual condition of the myocardium. Hence with myocardial damage a tachycardia might continue without any thyrotoxicosis.

Case 110.—An unmarried woman aged 30, a graduate nurse, had had symptoms of hyperthyroidism for five months but had kept at work during that time. Her chief symptoms were nervousness and intermittent pulse. She entered the hospital Nov. 14, 1916. Physical examination showed slight eye signs, moderate soft symmetrical enlargement of the thyroid with a systolic bruit, slight fine tremor of fingers and tongue, and warm moist hands. The heart was normal.

This patient received no treatment but rest and the Roentgen ray. Her chart was an interesting one. A steady fall in basal metabolism and pulse and a gain in weight occurred during the course of treatment. At the time of the last observation she was back at work and yet had a normal metabolism. We doubt very much whether rest alone could accomplish any such result and feel that it is just to credit the Roentgen ray with a considerable beneficial effect.

Case 121.—An unmarried woman aged 21, a domestic, had had symptoms for one year. All the typical symptoms of exophthalmic goiter had been present and had grown progressively worse but she had not been obliged to give up her work.

She entered the hospital Dec. 15, 1916. Physical examination at that time showed slight eye signs, moderate soft symmetrical enlargement of the thyroid with a loud systolic bruit, moderate tremor and hot moist hands. The heart was not enlarged but showed a systolic murmur at the apex.

This case is interesting because there was a marked initial drop in metabolism on rest in bed, but after the plateau had been reached, prolonged rest and intensive Roentgen-ray treatment over a period of four months failed to accomplish any striking improvement.

April 16, however, Dr. Porter removed the right lobe and isthmus and a portion of the left lobe, under gas and oxygen, and although there was a marked reaction after the operation, in a few days the patient began to improve and at the last two observations the metabolism was only 15 per cent above the normal. When last seen the patient presented only a very slight evidence of toxicity and wanted to return to work. We strongly advised her not to do so.

SUMMARY AND CONCLUSIONS

1. The general metabolism shows a characteristic increase in hyperthyroidism.

2. This rise may be used as a functional test of the thyroid activity or as an index of the intensity of the thyroid intoxication.

3. An extended study of the metabolism in various types of toxic goiter shows that:

(a) Rest alone usually causes a marked decrease in toxicity.

(b) Drugs in addition to rest do not materially accelerate this decrease.

(c) The Roentgen ray in some cases produces a definite improvement, while in others it seems to be quite without effect.

(d) The usual immediate effect of surgery is a marked decrease in toxicity, but there is a very definite tendency toward a subsequent recurrence.

4. The lesson in therapeutics to be drawn from these results we believe to be about as follows:

(a) Complete rest in bed plus irradiation should be continued until the metabolism reaches a level.

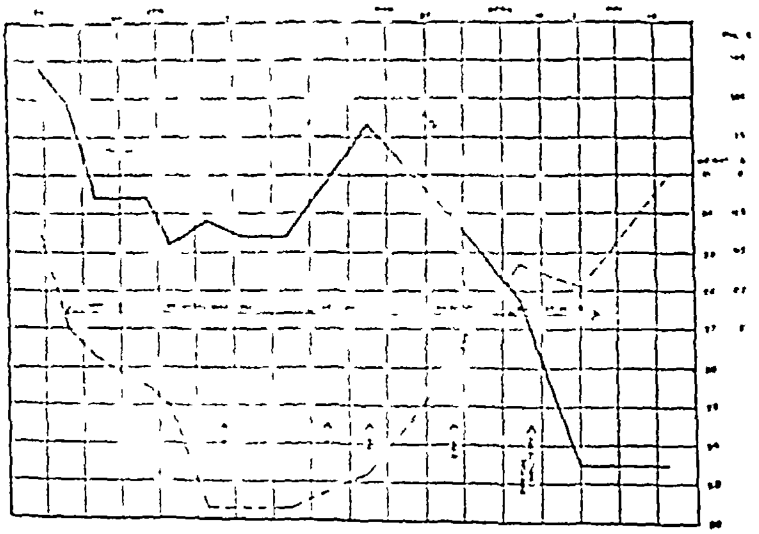

Chart 4.—Course in Case 121.

(b) If rest and the Roentgen ray fail to restore the metabolism to within 20 per cent of the normal, it is proper to resort to surgery, unless there is some definite contraindication. Among contraindications a rising metabolism, in spite of complete rest, seems to be very important.

(c) Following operation, if the metabolism again increases, further active treatment should be carried out. The observations in the cases that we have followed for a long time emphasize the importance of keeping cases of exophthalmic goiter under observation for months rather than weeks, and preferably years rather than months.

15 Chestnut Street.

Founder of Medical Reserve Corps of the Army.—Robert Maitland O'Reilly, surgeon-general during 1902-1909, created the Medical Reserve Corps of the Army for the expansion of its medical service in time of war, in which many distinguished physicians and surgeons of the country are now enrolled.—Lieut.-Col. C. C. McCulloch, Jr., U. S. Army: The Scientific and Administrative Achievement of the Medical Corps of the United States Army, *The Scientific Monthly*.

Clinical Notes, Suggestions, and New Instruments

WOUND DIPHTHERIA COMPLICATED BY RHEUMATIC FEVER

J. F. Bicak, M.D., New York

March 19, 1917, E. B., boy, aged 5 years, of German descent, was brought to my office with the history of a fall three weeks before, resulting in a wound of the ulnar side of the palm just below the wrist. This was said to have "healed up" and "opened again" one week before he was seen. He was pale and looked ill, but there was no elevation of temperature. The nose and throat did not show any acute lesion. Inspection of the hand revealed a wound 1½ inches long and from one-eighth to one-half inch wide covered by a firm gray membrane. A culture revealed diphtheria bacilli. March 20 I called at his home and injected 5,000 units of antitoxin. The membrane disappeared from the wound in two days. March 27 the temperature rose to 103.6 F., and there were pains in both knees and the right ankle. The throat was reddened and next day the tonsils were covered with a loose exudate. A diagnosis of rheumatic fever was made. The temperature reached normal, March 31, when the patient was last seen. He still had a slight tenderness on pressure over the insertion of the left hamstrings.

On the day antitoxin was injected, a brother, C. B., aged 10 years, was found with a temperature of 103.5 F., evidence of inflammation of the mucous membrane of the nose, many punctate spots on the tonsils, and enlarged and very painful glands in the neck. Five thousand units of antitoxin were injected. A culture taken from the tonsils proved negative, but a diagnosis of diphtheria seemed safe. Recovery was prompt.

Another brother, G. B., aged 8 years, had excoriations at the edges of the nostrils, and evidence of inflammation of the mucous membrane of the nose. The mother stated his nose had been like that for a month. He received 1,000 units of antitoxin. The next day the temperature was 100.5 F. A culture was taken from the nose, and diphtheria bacilli found. Next day the temperature was normal and recovery good.

Two other boys were immunized.

631 East One Hundred and Sixty-Ninth Street.

AN UNCOMMON FRACTURE OF THE PELVIS

F. W. Dudley, M.D., Manila, P. I.

A man, aged 42, while walking in his sleep, Nov. 27, 1913, fell from the upper story of his dwelling, a distance of about 12 feet. It would appear that the fall was partly broken by the hands and that the main force of the impact was received on the left side of the chest and over the left trochanter major. These deductions are made from the external marks of violence, the patient not knowing anything of the circumstances. He did not awaken as a result of the fall, being still asleep when found.

On examination, no fractures were discovered. Palpation of the left leg, thigh and hip was negative. There was no shortening, eversion, inversion or other deformity. The patient, however, was unable to extend the leg on the thigh, and when this was passively done, a slight vibration (not a crepitation) was transmitted to the hand held over the thigh. This gave the impression as if the head of the bone were sliding out of the socket and returning with a jump, such as is experienced in contortionists with lax ligmentum teres and joint capsule. The patient felt this also but experienced practically no pain.

Roentgenoscopy revealed a fracture beginning just beneath the anterior inferior spine of the ilium and extending downward and inward on about the line of union between the ilium and ischium, passing through the acetabulum and continuing on through the body of the ischium, completely separating the os innominatum into two parts. There was considerable separation of the fragments at the beginning of the fracture line. Another fracture was noted in the ischium, a serrated fracture line extending transversely through the ramus of the bone.

The cause of the fracture was the blow transmitted from the great trochanter through the neck to the head of the femur. The rule is for the neck to give way.

The patient was treated in a Bradford frame with a lateral splint extending from under the arm to beyond the sole of the foot, with a cross piece, buckle straps and swathe being used to retain it in place. The frame was supported on an ordinary bed with mattress removed. Two cross pieces of heavy timber were placed across the bed, one at the head and the other at the foot, to receive the frame. Two planks, placed on this, outside the frame, served as a convenience for attending to the patient's wants.

Passive movement was begun on the tenth day, and the patient was allowed up on the forty-second day.

There was no shortening of the limb, no pain on movement, and the patient has complete use of the leg, the anatomic and functional results being perfect.

One year after the accident the patient was able to spend the entire day wading through rice paddies, shooting snipe, without pain or abnormal fatigue.

SIMPLIFIED TECHNIC FOR LOCAL ANESTHESIA OF TONSILS

W. T. Patton, Ph.C., M.D., New Orleans
Fellow of the American College of Surgeons

Some textbooks in describing injection of the tonsils for local anesthesia show six or seven points at which we are told to inject. Others use a curved needle and inject just under the mucous membrane. Both of these methods cause an edema of the tissue, causing so much distortion that often it is hard to find the tonsil, and after operation there is bound to be more or less reaction from the introduction of so much fluid into the tissues. Again, our anesthesia is often poor and unsatisfactory.

The middle and posterior palatine nerves (branches of Meckel's ganglion) join with the tonsillar branches of the glossopharyngeal nerve to form a plexus around the tonsils (circulus tonsillaris).

With the exception of the mesial free surface, the tonsil is surrounded by a distinct fibrous capsule, and external to this capsule is found the pharyngeal aponeurosis, which is rather loosely associated with the capsule. External to this is the superior constrictor muscle of the pharynx.

The circulus tonsillaris forms around the capsule in the loose pharyngeal aponeurosis, and then sends small branches into the tonsil proper, both anterior and posterior pillars.

First it is necessary to diminish the pharyngeal reflexes, by either spraying or swabbing the oropharynx with a 10 per cent. solution of cocain, the swabbing being a much safer method. Applications are made at two minute intervals, until the reflexes are under control and the patient does not gag easily. Two or three applications are usually sufficient, though some patients may need six or more. In nervous persons it is wise to give a hypodermic injection of one-fourth grain of morphin ten minutes before the patient comes to the operating room.

After the reflexes have been brought under control, the anesthetic fluid is injected. Novocain solution, 1 per cent., with 15 minims of epinephrin solution, 1: 1,000, to one-half ounce of the novocain solution, is the most satisfactory anesthetic. Schleich's solution No. 1, with 15 minims of epinephrin solution works well. Instead of a small sharp needle or one of the hooked tonsil needles, a medium size, fairly blunt, short pointed, ordinary spinal puncture needle should be used. The needle is inserted through the center of the tonsil outward and backward, with the idea of placing the point of the needle as near as possible between the capsule and aponeurosis at its exact center, which procedure is easy. The needle is shoved through the nonresisting tonsil tissue until a slight resistance is felt, which is the fibrous capsule, and then just a fraction farther. Now from 15 to 20 minims of the novocain solution are injected. The solution infiltrates all around the capsule and there is no edema or swelling. After several minutes the tonsil can be removed by any method desired with perfect anesthesia and little hemorrhage.

It is remarkable how easy one may anesthetize the tonsil in this way with a small quantity of solution and only one puncture. If the tonsil is large or long it is best to make two punctures, one through the upper pole and one through the lower pole.

I have removed over thirty tonsils by this method of anesthesia, and have had excellent anesthesia in all.

The advantages are:

1. Excellent anesthesia.
2. Small amount of fluid injected into the tissues.
3. Lack of edema and disturbance of the tissues.
4. Lack of postoperative reaction.

1109 Maison Blanche Building.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

HAY FEVER POLLENIN SPRING-MULFORD.—A liquid obtained by extracting the proteins of the pollen of rye (*Secale cereale*), timothy (*Phleum pratense*), orchard grass (*Dactylis glomerata*), sweet vernal grass (*Anthoxanthum odoratum*) and red top grass (*Agrostis alba*) and standardizing the solution by estimating the amount of protein contained in it. Preserved with three cresols.

Actions and Uses.—See New and Nonofficial Remedies, 1917, p. 242, under general article on Pollen Extract.

Dosage.—See New and Nonofficial Remedies, 1917, p. 242, under general article on Pollen Extract. Each package of Hay Fever Pollenin Spring-Mulford bears an expiration date (four months from date of removal from laboratory).

Manufactured by the H. K. Mulford Company, Philadelphia. No U. S. patent or trademark.

Hay Fever Pollenin Spring-Mulford Four Syringe Package.—The syringes contain respectively 0.0025 mg., 0.005 mg., 0.01 mg. and 0.02 mg. of pollen protein.

Hay Fever Pollenin Spring-Mulford One Syringe Package.—Each syringe contains 0.02 mg. of pollen protein.

Equal parts of the pollen of rye (*Secale cereale*), timothy (*Phleum pratense*), orchard grass (*Dactylis glomerata*), sweet vernal grass (*Anthoxanthum odoratum*) and red top grass (*Agrostis alba*) after being dried are ground in a ball mill to destroy the cell membrane. This is then extracted with physiological sodium chloride solution. The extract is precipitated with acetone. The precipitate is dried and finally extracted again with physiological sodium chloride solution. The soluble proteins being brought into solution a nitrogen determination is made on this extract and it is then standardized according to the protein (nitrogen) content.

HAY FEVER POLLENIN FALL-MULFORD.—A liquid obtained by extracting the proteins of the pollen of ragweed (*Ambrosia artemisiaefolia*), golden rod (*Solidago*) and maize (*Zea Mays*) and standardizing the solution by estimating the amount of protein contained in it. Preserved with three cresols.

Action and Uses.—See New and Nonofficial Remedies, 1917, p. 242, under general article on Pollen Extract.

Dosage.—See New and Nonofficial Remedies, 1917, p. 242, under general article on Pollen Extract. Each package of Hay Fever Pollenin Fall-Mulford bears an expiration date (four months from date of removal from laboratory).

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Hay Fever Pollenin Fall-Mulford One Syringe Package.—Each syringe contains 0.02 mg. of pollen protein.

A mixture of 90 parts of the pollen of ragweed, 5 parts of the pollen of various species of golden rod and 5 parts of the pollen of maize after being dried is ground in a ball mill to destroy the cell membrane. It is then extracted with physiological sodium chloride solution. This extract is precipitated with acetone. The precipitate is dried and finally extracted again with physiological sodium chloride solution. The soluble proteins being brought into solution a nitrogen determination is made on this extract and it is then standardized according to the protein (nitrogen) content.

BORCHERDT'S MALT OLIVE.—A liquid stated to be composed of olive oil 20 per cent., glycerin 10 per cent. and Borcherdt's Malt Extract Plain 70 per cent.

(Accepted for inclusion with the Appendix to New and Nonofficial Remedies.)

Prepared by the Borcherdt Malt Extract Co., Chicago.

CITRESIA.—Magnesium Acid Citrate.—$MgHC_6H_5O_7.5H_2O$.—The hydrated acid magnesium salt of citric acid containing not less than 98 per cent. of $MgHC_6H_5O_7.5H_2O$.

Actions and Uses.—Citresia has the laxative and purgative action of magnesium citrate.

Dosage.—As a laxative 25 Gm. (6 drachms); as a purgative 50 Gm. (1½ ounces). It may be administered by dissolving citresia 25 Gm. in syrup of citric acid 25 Cc. and water enough to make 150 Cc.

Manufactured by Herzer, North New York. No U. S. patent or trademark.

Citresia is a white or faintly yellowish-white crystalline odorless powder having an acid taste.

Citresia is very soluble in water; insoluble in alcohol, ether or chloroform.

Five Gm. of citresia should dissolve without residue in 25 Cc. of water.

If to 10 Cc. of an aqueous solution of citresia (1 in 20) 1 Cc. of hydrochloric acid and 1 Cc. of sodium phosphate solution be added and the solution be made slightly alkaline with ammonia water, a white crystalline precipitate should be produced.

If 10 Cc. of the aqueous solution of citresia (1 in 20) be neutralized with potassium hydroxide solution and 1 Cc. of calcium chloride solution added, no precipitate should be produced. After boiling the mixture for one or two minutes a white crystalline precipitate should appear.

If 5 Gm. of citresia be shaken with 25 Cc. of alcohol, the mixture filtered, the filtrate evaporated, the residue, if any, dried for one hour at 100 C. and weighed, the weight found should not amount to more than 0.05 Gm. (*limit of citric acid and some other impurities*).

If from 0.5 Gm. to 0.6 Gm. of citresia be weighed and the salt dried to constant weight at 75 C., the loss should not amount to more than 30 per cent. (*absence of an undue amount of water*).

If from 0.5 Gm. to 0.6 Gm. of citresia be weighed, the salt ignited and the residue weighed, the ash should amount to not less than 13 per cent.

If from 2 Gm. to 3 Gm. of citresia be weighed, the salt dissolved in 25 Cc. of water and the cold solution titrated with normal potassium hydroxide, using phenolphthalein as indicator, the alkali required should correspond to at least 98 per cent. of hydrated magnesium acid citrate.

1 Cc. of normal potassium hydroxide volumetric solution = 0.3045 Gm. of $MgHC_6H_5O_7.5H_2O$.

If from 0.5 Gm. to 0.6 Gm. of citresia be weighed, the salt dissolved in 50 Cc. of 1 per cent. hydrochloric acid, a slight excess each of sodium phosphate solution and ammonia water added, the mixture allowed to stand 15 hours, the precipitate collected in a weighed Gooch crucible, washed, dried, heated and weighed in the usual way, the weight of magnesium pyrophosphate should correspond to not less than 98 per cent. of hydrated magnesium acid citrate ($MgHC_6H_5O_7.5H_2O$).

$$Mg_2P_2O_7 \times 2.734 = MgHC_6H_5O_7.5H_2O$$

ANTIRABIC VACCINE (See N. N. R., 1917, p. 291).

Eli Lilly and Company, Indianapolis, Ind.

Pasteur Antirabic Preventive Treatment (Harris Modification).—Brains and spinal cords of rabbits dead of fixed virus rabies infection are ground to a paste which is frozen by the addition of carbon dioxide snow. The mass is pulverized and rapidly dried in vacuo. The resulting dry powder is standardized by the method devised by Dr. Harris and stored in vacuo in the cold. One dose is given daily over a period of 14 days, the early doses increasing in unitage up to a maximum. Supplied in emulsion in syringe ready for use. The first three doses are sent out from distributing stations, the remaining ones from the home office.

Test for Picric Acid in the Urine.—F. Arena acidifies the suspected urine with a few drops of concentrated sulphuric acid and then places in the urine some wool cleared of fat. Any picric acid present fastens on the wool in the course of a few hours. The wool is then treated with a few cubic centimeters of hot concentrated ammonia. To this are then added 1 or 2 c.c. of a 2 per cent. solution of ferric citrate, not allowing the two fluids to mix. With positive findings, at the zone of contact a bright red ring forms, due to formation of picraminic acid.—*Riforma Medica*, p. 441.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . Chicago, Ill

Cable Address . . "Medic, Chicago"

Subscription price . . . Five dollars per annum in advance

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SATURDAY, JULY 7, 1917

IS EPINEPHRIN INDISPENSABLE FOR THE ORGANISM?

The physiologic potency of epinephrin has given it a widespread prominence alike in physiology, pharmacology, pathology and therapy Any one who has witnessed the intense blood pressure raising effects of almost vanishingly small quantities of suprarenal extract or of the isolated epinephrin cannot fail to be impressed by such striking manifestations on the part of a biologic product. The diversity of the responses which can be produced serves to augment still more the interest in the active principle of the suprarenal structures The local styptic power, so invaluable in diminishing inflammation and reducing hemorrhages, the relaxation of the muscles of the bronchioles, now familiar in the management of asthma, the profound effects on all structures innervated by the sympathetic nervous system, the production of hyperglycemia and glycosuria following administration of epinephrin, and its consequent relation to liver function—these are some of the familiar phenomena that have been demonstrated repeatedly or are already familiar in the routine of practice

Lately this interest in epinephrin has been heightened by the widely discussed associations of the suprarenal bodies and certain mental states These glands are asserted to participate in the emotions in a remarkable way For example, during anger or fright, in some species, at any rate, something having the properties of epinephrin appears to be discharged into the blood in more than usual amounts This is assumed to promote precisely those responses and prepare those conditions that favor a suitable performance on the part of the organism under the emergency that provokes the liberation of the hormone

These observations are of the greatest interest as indications of a remarkable association of the glands with the emotions But as Mathews[1] has significantly remarked, it must not be incorrectly inferred that the emotion of fright depends on the suprarenal glands, or that the manifestation of this emotion necessarily so depends The fact is probably quite otherwise The central nervous system is responsible both for emotion and for the stimulation of the sympathetic system, only the sympathetic stimulates the suprarenals to secrete epinephrin, which in its turn makes the sympathetic innervation more efficacious It is like a process of autocatalysis, the sympathetic system, as it is stimulated, automatically raising the efficacy of its own stimulation

Despite these diverse interesting facts that are known about epinephrin, it must not be concluded that the liberation of this compound represents the sum total of the functions of the suprarenal bodies Extirpation of these structures invariably results in death, but the symptoms which precede it are scarcely ameliorated, nor has the fatal outcome been prevented by the injection of epinephrin

Stewart and Rogoff[2] have shown that after section of the nerve supply of the suprarenals in animals there was no demonstrable liberation of epinephrin into the circulation, for some weeks at least, after the operation It is highly probable, therefore, that the entire secretion of this hormone from the glands is controlled by the nervous system Furthermore, in a series of new experiments in which one suprarenal was excised and the nerves of the other severed, the animals recovered completely from the operation and behaved in every way like normal animals It must be concluded, therefore, that the liberation of epinephrin from the suprarenals is not indispensable for life or health, unless, indeed, the necessary quantity, even in the suprarenal vein blood, is below the limits of detection by the methods used The real cause of death after loss of the suprarenals remains to be elucidated, nor is there yet any adequate explanation of the pigmentation of the skin in Addison's disease

THE ANTINEURITIC PROPERTIES OF MILK

"It is well to be on the right side of facts, for they are stubborn things and insist on being respected" This dictum deserves to be reiterated with strong emphasis at a time when shortage of food is confronting millions of people and when the possibilities of specific deficiencies in food products and the introduction of "devitalized" foods as a result of current methods of food manipulation are being widely discussed In urging young men to "first get the facts," the secretary of commerce has said

> The relation men hold to truth, their respect for facts, their use of facts, largely determines their place and power in life We make progress in the business world not necessarily by research for facts but at least by outreach for them and by respectful treatment of them when they are found The amount of success will depend a good deal upon how far your vision goes in seeing the facts that surround you and on the

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[1] Mathews, A P Physiological Chemistry, 1915, p 672

[2] Stewart, G N, and Rogoff, J M Quantitative Experiments on the Liberation of Epinephrin from the Adrenals after Section of Their Nerves, with Special Reference to the Question Whether Epinephrin is Indispensable for the Organism, Proc Soc Exper Biol and Med 1917 **14**, 145 Jour Pharmacol and Exper Therap 1916, 8, 479

extent to which your practice goes in using those facts The man of broad mind sees more facts than he who has a narrower vision Mental nearsight is usually not profitable To be farsighted is at times physically inconvenient but commercially has much in its favor It is more essential however, that the sight, whether it be far or near shall know a fact when it sees it and be ready to abandon a pseudo fact for a real one and to abide by the latter till further facts are found[1]

Despite the excellent nutritive properties which have been accredited to milk almost from time immemorial, science is tending to limit unbounded enthusiasm for this universal food We have already referred to the apparently well founded assertion that the milk of mothers suffering from beriberi is not an adequate nutrient for their young[2] The observation that deficiencies in the form of a lack of essential components as well as positively damaging substances can be thus transmitted is what deserves notice in this regard If this is well substantiated,[3] milk may become an actual menace at times when it is produced under physiologically unsatisfactory conditions or is subsequently deteriorated in commerce Aside from possible inherent nutrient defects in milk as it is produced by the mammary glands, the problem of heating it, we still venture to assert, is far from solved One needs only to read the conflicting claims as to the production of infantile scurvy by the use of pasteurized milk for infants, and the reports of the appearance of typical scorbutic symptoms in certain animals fed on raw as well as on heated milks to wonder whether it is not timely to divorce fact and hypothesis completely in this matter in order to bring the subject out of its present chaos

In addition to its reputed antiscorbutic virtues in some species at least, fresh milk is reported to manifest antineuritic properties which give it a protective value against the encroaches of beriberi An intimate relation between scurvy and beriberi has often been postulated of late Symptoms intermediate between the two well characterized affections have also been described For the purposes of the present discussion it will be advisable to avoid all conflicting claims by disregarding, for the moment, the possible antiscorbutic features of milk or its value as a possible stimulant to growth, and by concentrating attention on its relation to the prevention of neuritic manifestations which arise from the employment of diets which are somehow deficient

The antineuritic properties of milk have not been thoroughly investigated Accordingly, at the College of Medicine and Surgery in the University of the Philippines, Gibson and Concepcion[4] have attempted to ascertain by feeding experiments whether or not antineuritic substances are present in milk and to what extent they may be affected by autoclaving the milk for two hours at 125 C The outcome offers practical suggestions quite apart from the theory of etiology which may be held The experiments at Manila indicate that the antineuritic property is present in milk in only slight amounts, and that the continued feeding of either fresh milk or autoclaved milk to animals (dogs and pigs) without suitable additions to the diet induces certain beriberi symptoms degeneration of the peripheral nerves persistent edema, and aphonia There is no evidence, Gibson and Concepcion state that autoclaving the milk for two hours has in any way affected its nutritive value Not even scorbutic symptoms have been observed If we may tentatively accept the evidence of the Manila investigators, the antineuritic powers of milk are so slight that in infant feeding the diet should be extended as soon as possible We may entertain, without accepting their further suggestion that the young of healthy mothers probably come into the world with a reserve supply of vitamin substances sufficient to tide them over in a nutritive way until the time when, under natural conditions of life, they would begin to eat other foodstuffs

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[1] Redfield, W C First Get the Facts Science 1915 **42,** 39

[2] Infantile Beriberi editorial The Journal A. M A Nov 30 1912 p 1977

[3] The Relation of the Mother to Some Dietary Factors in Milk editorial The Journal A. M A March 10 1917 p 782 A Restricted Diet, April 21 1917 p 1184

[4] Gibson R B., and Concepcion I The Influence of Fresh and Autoclaved Cow s Milk on the Development of Neuritis in Animals Philippine Jour Sc. (B) Trop Med 1916 **11,** 119

ANTITOXIN FOR GAS GANGRENE

The gas-producing bacilli, now commonly spoken of as *B welchii*, occur in a variety of lesions but their chief hold on our interest lies in their connection with gas gangrene, that dreadful complication of wounds especially those received in modern warfare The effects of gas bacilli have been explained in various ways, most often as due to some form of intoxication, either from the products of the decomposition of infected tissues or through the generation of fatty acids as well as in other ways, but it has not been thought that the effects were dependent on true bacterial toxins Bull and Pritchett,[6] however, report highly interesting experiments, the results of which indicate that, under suitable conditions, cultures of gas bacilli produce true toxins to which their pathogenic effects, at least in certain animals, may be ascribed There are produced at least two distinct toxins, one of which is hemolytic while the other causes local edema and necrosis and probably also a more general toxic action

The destructive action on blood was shown most definitely by the intravenous injection of Berkefeld filtrates of cultures of gas bacilli in plain broth, to which sterile pigeon or rabbit muscle had been added, and the local destructive effects were produced best by subcutaneous and intramuscular injections of such

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[5] It may not be amiss to refer to some of the confusion on this subject due to conflicting evidence Lane Claypon Janet Jour Hyg 1909 **9,** 233 Daniels Amy L. and Stuessy Sylvia The Nutritive Value of Boiled Milk Am Jour Dis Child January 1916 p 45

[6] Bull and Pritchett Jour Exper Med 1917 **26** 119

filtrates. Indeed, the lesions in the breast muscles of the pigeon, produced by injection of the filtrates, resembled closely the effects caused in animals and in human beings by actual infection with the bacilli. These actions of filtrates of gas bacilli cannot be neutralized with sodium hydroxid, and hence are not caused by butyric and other acids; they are materially reduced by heating filtrates to 62 C., and are completely removed at 70 C. for thirty minutes. Repeated injections of filtrates in pigeons and rabbits result in a true active immunity, and the blood of immunized rabbits neutralizes the toxic actions of the filtrate not only in the test tube, so far as the hemolytic action is concerned, but also in the living animal with respect to the locally injurious actions as well as the destruction of blood corpuscles, and it is still more significant that in pigeons such antitoxic serum proved to be protective and curative against actual infection with gas bacilli, both in the spore and in the vegetative stages. Bull and Pritchett also find that antitoxic rabbit blood and toxic filtrates of gas bacilli neutralize each other perfectly in multiples of single doses, thus fulfilling the law of multiple proportions as established with reference to the toxins and antitoxin of *B. diphtheriae* and *B. tetani*.

It appears, then, that gas bacilli may produce true toxins, which cause the principal pathogenic effects seen in gas infections and which can be neutralized by antitoxin, the latter being also protective and curative against gas bacillus infection in pigeons — a discovery that would seem to hold out great promise for the development of a specific treatment of human infection with gas bacilli.

THE CARE OF THE NEW-BORN

The first days of life are attended by a loss of body weight which is ordinarily regarded as a "natural consequence." The extent of decline, which ceases as a rule after the third day, averages from 150 to 200 gm., though the figures for the individual are highly variable. Whether or not an attempt should be made to combat this loss of weight has been debated. On the one hand, it is maintained that the intake of enough food to avert the loss should not be attempted until the newly born organism can grow up, so to speak, to the capacity of digesting and assimilating added nutriment; others find no occasion to delay prompt gains in weight so long.

An examination of the precise reasons for the usual early loss of weight may help to furnish enlightenment in the questions under dispute. The essential facts are assuredly not new; Talbot[1] has recently thus summarized them. The loss of weight is of two kinds: (1) "mechanical" and (2) "physiologic." The mechanical loss represents material which may be collected and weighed, and is due principally to the passage of urine and meconium, and at times to the vomiting of allantoic fluid, swallowed by the infant before birth. There is also a loss due to the evaporation of water from the skin. The physiologic loss of weight is that due to the actual oxidation of body substance as a result of metabolism, and to the fact that an infant is virtually starved during the colostrum period. The colostrum which an infant receives does not give enough food to supply the necessary energy to keep it warm.

Talbot has summarized the best quantitative data available with respect to human colostrum. The mother's breasts at birth contain only a small quantity of colostrum, which is increased under the stimulation of sucking, until the breast milk "comes in," on about the third or fourth day after birth. The amount of colostrum during the first twenty-four hours after birth is between 4 and 6 c.c., and gives approximately 3¼ calories. During the second day the baby receives from 78 to 129 c.c. of colostrum, or from 51 to 84 calories. On the third day the amount of colostrum varies between 199 and 238 c.c., which give from 129 to 154 calories. Colostrum, therefore, gives the new-born infant only a minimal amount of energy, insufficient to supply its energy requirements. It is quite natural that it should lose weight during the colostrum period.

From Talbot's standpoint, which seems to be the rational outcome of physiologic considerations, the question of early additional feeding centers in the nutritive condition of each child at birth. The fat, he remarks, which was deposited during the last month of intra-uterine life, is the storehouse of fuel, and must be present in large enough amounts to supply energy until the breast milk "comes in" to take its place. Clinical experience bears out the inference that infants without a good layer of fat at birth should receive food at the earliest possible moment. The practical directions are that "weak or premature infants should be fed shortly after birth, preferably with the milk of another woman; but when this is lacking, a 5 per cent. solution of some sugar, such as lactose, should be given as a temporary expedient." This addendum is not as likely to disturb an easily upset digestive apparatus as cow's milk is at such early ages.

There is another occasion for the depression of the physiologic functions in the new-born which may be averted. Heat may be lost through the water bath instituted too early. Temperature may actually become diminished and untoward consequences may arise in infants that are not vigorous at birth. Talbot believes that the bath, being a possible cause of chilling, as actual temperature records show, should be entirely discarded in the case of the new-born. Warm oil may be used to cleanse the body without evaporation and excessive loss of heat from the delicate organism.

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[1] Talbot, F. B.: Physiology of the New Born Infant, Am. Jour. Dis. Child., June, 1917, p. 495.

FETAL ATHYREOSIS

Students of human thyroid disease will be interested in a series of observations with respect to the iodin requirement of pregnant animals reported from the field of animal husbandry It is known that a large percentage of the sows in certain sections of the Northwest have given birth to hairless and otherwise defective young Many of these pigs are born dead others die in an hour or two, and few live more than twenty-four to thirty-six hours The resulting loss in Montana amounts to about 1 000,000 young pigs annually While the loss is heaviest among swine there are numerous cases among sheep and occasionally among cattle and horses

The affected pigs are carried to the full term of gestation period and though of full size are strikingly weak and low in vitality Most noticeable in the appearance of a typical specimen is the absence of hair Except for a few tactile hairs on the nose and a few around the eyes the skin is smooth shiny and bald This scantness of hair varies from almost no hair through all gradations to the normal amount The skin particularly around the shoulders, feels pulpy and is from half to three quarters of an inch in thickness It is semitransparent and apparently edematous, but no fluid escapes on incision The hoofs are thin walled short brittle and evidently in an undeveloped condition The heart, in every case examined, has a persistent foramen ovale The thyroid is dark red, sometimes almost black, and presents a most constant enlargement A histologic examination shows a uniform hyperplasia and a distention of the blood vessels

It will be noted, as Smith[1] has pointed out, that the apparent symptoms of the affected pigs correspond in many details to those of myxedema in its classic type, and to the symptoms sometimes described by the earlier surgical workers as arising after extirpation of the thyroid The hyperplasia of the thyroid varies proportionately with the acuteness of the malady

The hypotheses that this affection of the pigs is due to the presence of some toxic substance taken with the food or to an infective agent of low virulence have not been found tenable The evidence gathered by Smith at the Montana Experiment Station indicates that the malady is caused by the malfunction of the thyroid An examination of the glands of affected animals showed that they are abnormally large, that the iodin content is extremely low in comparison with that of normal pigs, and that in general the iodin content varies inversely with the degree of hairlessness of the skin An iodin deficiency during the gestation period causes a lack of function and hyperplasia of the fetal thyroid, resulting in an arrested development of the fetus

It thus appears that, if certain as yet unknown conditions are favorable, the mother may obtain the amount of iodin required for the activities of both her own and the fetal glands, but if these conditions are not favorable, the maternal organism can still obtain the amount required for the activities of its own thyroid but not enough for the rapidly growing fetus The iodin starvation of the fetus depresses the physiologic activity of the fetal thyroid, which causes the remarkably arrested development peculiar to this malady The feeding of iodids is reported to have averted the appearance of fetal athyreosis in regions in which it would otherwise have been expected to occur

If the facts reported may be taken as evidence, to quote Smith that an abundant secretion of the fetal thyroid during the later stages of intra-uterine life is essential for the normal development of the fetus, certain important consequences suggest themselves to students of the human fetal development The need of a suitable intake of iodin during pregnancy attains a new and perhaps unsuspected significance Until something more definite is known, however, regarding the actual consumption of iodin in the food of man in different regions it would be hasty to draw any far-reaching inferences The problems of thyroid function need to be approached from many angles

Current Comment

THEORIES AS TO THE ETIOLOGY OF PERNICIOUS ANEMIA

Pernicious anemia remains, even at the present day, one of the perennial puzzles of the student of the etiology of disease A few innovations, such as transfusion and splenectomy, have been introduced into the therapy of this insidious malady, but it would be rash to ascribe any lasting advantage to any of the proposed methods of treatment Obviously, these will remain in the category of hit-and-miss procedures until the underlying cause or causes of pernicious anemia are better understood Accordingly it is worth while, now and then, to take stock of the proposed explanations that are current and to learn what hypotheses have survived the criticism of competent observation or the test of investigation Without some theories as guiding motives, little progress is made in the medical sciences Squier[1] has recently summarized the more conspicuous conclusions regarding the genesis of pernicious anemia We may temporarily dismiss consideration of one of the familiar hypotheses — hypersplenism — which is commonly discussed in this connection and forms the basis for the operative removal of the spleen as a therapeutic measure The success of this can as yet scarcely be regarded as sufficiently striking to establish definitely a splenic etiology, at least in any preponderating role The special part played by the spleen in the hemolytic processes of the disease that are now well known remains decidedly uncertain Pernicious anemia has also been ascribed to a general disturbance of the lipoid mechanisms and functions of the body As the result of such abnormality, hemolytically active substances like oleic acid or similar fatty acids might be liberated in undue amounts and exert a baneful influence on the integrity of the blood cells Furthermore, the latter are known to abound in phosphatids and cholesterol compounds which are intimately concerned in hemolytic phenomena The erythrocytes in pernicious anemia are notably susceptible to the influence of certain hemolytic agents Somewhat more tangible, though equally indefinite, are the hypotheses that make pernicious anemia the result, as Squier expresses it, of a gastro-intestinal disturbance leading to destruction of mucosa sufficient either to allow undigested proteins to leak through into the blood stream where their parenteral digestion liberates protein poisons, or of the absorption of known hemolytic toxins produced in the course of intestinal putrefaction In either case, Squier adds, the poison has a destructive influence on the intestinal mucosa, as well as the more evident hemolytic effect, and this results in the establishment of a vicious circle We may confidently expect that before long the study of experimentally produced anemias will give much needed evidence as to the tenability of the hypotheses which are becoming more clearly defined from time to time

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[1] Smith, G E. Fetal Athyreosis a Study of the Iodin Requirement of the Pregnant Sow Jour Biol Chem 1917 29, 215

[1] Squier T L Concerning the Chemistry of Pernicious Anemia Jour Lab and Clin Med 1917 2 552

THE NORMAL REACTION OF THE INTESTINAL TRACT

The sensitiveness of the digestive enzymes even to slight changes of reaction obviously renders it desirable to know what conditions they are likely to encounter in this respect in the different regions of the alimentary tract to which they may be carried The behavior of each digestive secretion may be essentially changed by admixture with other fluids pouring into the gastro-intestinal canal for a variety of reasons Shifts in the reaction of the mediums, the possible interaction of the enzymes themselves, and the even less well analyzed activating functions which one secretion may perform for another are features that illustrate how complicated the chemical processes represented by the combined action of all the fluids that are brought together within the intestine may become The reaction of the intestinal contents is believed to be of moment not only for the enzymatic changes that may proceed within them but also in determining to a considerable degree what microorganisms may gain a foothold in the alimentary tract Thus distinctly acid conditions undoubtedly inhibit putrefactive processes, but the degree of acidity requisite and the possibility of establishing this within the lower bowel are by no means demonstrated There are several series of observations on record relating to the reaction of the intestinal contents, but they are decidedly contradictory One might readily conclude from these reports that the reaction is an exceedingly variable factor even in the same species Nearly all of the published statements are based on tests made with the familiar indicators, such as litmus For the range of reaction bordering on neutrality, such as is characteristic of most physiologic fluids, the significance of the older indicator methods is anything but exact The newest investigations in this field, by Long and Fenger[1] of Chicago, are more trustworthy because they are based on exact electrometric determinations of the hydrogen-ion concentration of the intestinal contents of man and animals Intestinal fluids were collected from various levels in the alimentary tract by the aid of a narrow Rehfuss tube taken in to a considerable length By this method it was found that in the human small intestine the reaction may vary from distinctly acid to slightly alkaline on the part which may be reached by the Rehfuss tube When the tube is far enough down to secure a uniform mixture of contents, the acid reaction is apparently as common as the alkaline, but the degree of acidity is not sufficient to check the normal tryptic digestion, which in some instances seems to be favored by a reaction on the acid side of neutrality The reaction found must vary with the state of digestive activity, and is simply an equilibrium condition between the chyme and the alkaline juices poured into the duodenum Any reaction near neutrality may obtain These new facts are valuable, not only from the standpoint of the possibilities afforded to digestive activity or bacterial inhibition, but also as indexes to the behavior which drugs that undergo chemical reactions in the presence of acids or bases may be expected to exhibit in the parts of the alimentary tract beyond the stomach

THE BEHAVIOR OF MALIC ACID IN THE BODY

The organic acids which are found in many of the fruits which enter into the dietary of man were long the subject of misinterpretation with respect to their behavior in the body Thus the "acid" fruits were at one time commonly charged with functioning in a way to augment the acidity of the organism, whereas we later learned to appreciate that many, if not most, of the dietary organic acids are oxidized in the body so as to give rise to carbonates In this way the end-result of their metabolism is quite the reverse of what might be expected from a fixed acid substance The consequent deduction that all organic acids are easily burned up in the organism, and therefore never exhibit any action more unusual than that shown by an ordinary oxidizable foodstuff, is almost as erroneous as the reverse conception of the unvaried acid manifestations of the substance under discussion The truth seems to lie midway between these extremes of unwarranted generalization, so that we must at length recognize the necessity of learning specifically the behavior and the fate of each individual of the organic acid group in the living organism When this is done there will be opportunity to discover, at the one extreme, compounds, like oxalic acid, which are extremely toxic and seem to traverse the body unchanged, others, like benzoic acid, which are not destroyed in the metabolism, but are conjugated with substances, like glycocoll, forming in the instance cited the innocuous hippuric acid of the urine and still others like tartaric and citric acids which represent intermediate examples between the deportment just cited on the one hand and complete utilization in the body on the other The behavior of some of the foregoing compounds was discussed recently [1] To these may now be added the newest findings with respect to the salts of malic acid, which likewise is present in familiar fruits of the dietary [2] Even this supposedly innocuous substance is not completely destroyed in the organism according to Wise's observations on experimental animals most of it, however, disappears in the metabolism so that only small proportions are ordinarily excreted by the kidneys In contrast with the acids previously considered [1] malic acid must be administered in far larger doses than tartaric or citric acids, for example, in order to elicit signs of toxicity Even very considerable amounts of sodium malate are not followed by such untoward symptoms as nephritis or glycosuria Malic acid which escapes oxidation in the body is readily eliminated by the kidneys

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[1] Long, J H, and Fenger, F On the Normal Reaction of the Intestinal Tract, Jour Am Chem Soc, 1917, 39, 1278

CASUALTIES IN THE MEDICAL CORPS OF THE BRITISH ARMY

There has been such an astonishing amount of misinformation exaggerated and sensational statements published in this country regarding the casualties among medical officers in the British Army that Col T H Goodwin of the British Army Medical Service, now in this country, cabled to the British War Office for the actual facts He received the following data The total casualties among medical officers of the British forces, on the western front, from the beginning of the war to June 23, were killed, 195, wounded, 707, died of disease, 62 Hence the total number of casualties from actual war injuries on the western front was 902, of which 195 were in killed This is entirely different from some of the statements which have received wide publicity in this country — some even semiofficial in character — which have reacted to the detriment of the efforts to secure officers for the Medical Reserve Corps

INFANT DEATH RATES AND SOCIAL CONDITIONS AT MANCHESTER, N H

That the various conditions associated as causes and results with low earning capacity on the part of the father result in a high death rate in infancy among his offspring is shown in a report on infant mortality at Manchester, N H, just issued by the Children's Bureau of the United States Department of Labor A study was made of all babies whose births were registered during a single year and whose families could be found In the entire group, 1,643, the death rate was 165, but the death rate among the poorest families was more than four times as high as among the families in the highest wage group Among 119 babies whose mothers went out to work before the babies were 1 months old the death rate was 277 per thousand In families able to live in a one-family house, the death rate among babies in the first year of life was 86, when circumstances compelled residence in houses containing seven or more families the death rate was 237 In families able to provide more rooms than there were persons in the family, the death rate was 124, when there were two or more persons per room the death rate was 246 In each economic group the babies who were artificially fed had fewer chances of survival than did the babies whose mothers nursed them but the difference in the death rates for breast fed babies and for those artificially fed is influenced by the economic status of the family, and is least among families of the highest income group

Medical Mobilization and the War

Eligibility of Physicians of Foreign Birth for Service with Base Hospitals

To the Editor —I note in the press that 'the State Department has ruled that Americans of foreign birth or blood are ineligible for service in Red Cross units recruited for service abroad

My father who was born in Germany is a good American and has been a faithful servant of the government for over twenty five years My mother was English Irish and I have had ancestors in nearly every war the United States has had

I have qualified for a commission in Medical Reserve Corps because I felt it to be my duty as a physician to serve my country Now it seems I am not to have as much right as a citizen as my grandfather had when he was killed in the last charge in front of Atlanta or of another ancestor when he signed the Declaration of Independence

I know United States Army officers of German blood and birth Why are physicians discriminated against? If printed please withhold name

* * *

Comment —We publish one letter to represent a number that have been received There evidently is some misunderstanding The facts as we understand them and as recorded in the *Official Bulletin* are The directors of Red Cross base hospitals received from the director-general of the Department of Military Relief of the American Red Cross, Colonel Kean a copy of a letter from the state department to the effect that base hospital units intended for service in France should not include persons of German, Austro-Hungarian Bulgarian or Turkish nationality or birth or American citizens whose fathers were born in Germany Austro Hungary or allied countries It must be understood that this action does not refer to Medical Reserve Corps officers—that is to those who may be sent to France with the troops, but to those composing the so-called base hospital units that have been in course of formation for over a year—long before war with any European country was considered probable (see THE JOURNAL for June 2 p 1630) of which a number are already in France in connection with the base hospital work of the French and English armies These base hospital units are in a way independent of our main army

Commenting on this matter Mr Henry P Davison chairman of the Red Cross war council of the American National Red Cross says

> In view however, of the earnest and whole hearted way in which so many Americans have volunteered their services in manning these base hospital units this ruling of the allied nations is peculiarly embarrassing to the work of our Red Cross The Red Cross has, of course never questioned the loyalty of any American citizen
>
> It is not difficult to appreciate the attitude of the allied governments responsive as they are to the sentiment of their peoples
>
> Obviously, no such ruling can be applied against our troops who will soon be fighting side by side with the allies in France and I am confident that when the situation is fully understood exemption will be made in favor of those loyal American citizens who are sent to participate in the humanitarian work our Red Cross is undertaking

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[1] The Behavior of Three Organic Acids in the Body editorial, THE JOURNAL A. M A March 31 1917 p 984

[2] Wise L. E Elimination of Malates After Subcutaneous Injection of Sodium Malate Jour Biol Chem 1916 28, 185

Misinformation as to Physicians in the War

To the Editor —In reading the June 22 number of the Boston *News Bureau*, I noticed the following article taken from the *Wall Street Journal*

> Reports indicate that heaviest losses in the present war have been suffered by the medical corps In former wars, physicians were kept in the rear, but not so now Four doctors accompany each regiment, and three of these are sent to the firing line with the troops to give immediate aid to the wounded Without arms and with no way of protecting themselves, these men are mowed down Already 60,000 have been killed In a recent engagement 257 were killed in an hour, in another engagement 400 were killed An ambulance driver, temporarily called from his post, returned to find only twelve persons left out of the original 165 on duty when he went away

I am wondering if something can not be done to avoid this awful butchery of our medical men, for I understand that our government has called on all persons to do their part in the way they can be most useful, so why not let the surgeons remain in the hospitals at the rear of the firing line, where they could relieve the suffering of perhaps thousands, while if they are sent to the front, they can only relieve a few at best So I hereby appeal to you, as editor of the great A M A Journal, to use your influence, and protest to the higher powers to change the system, remembering that skilled physicians are not made to order, but that it takes many years of training and preparation to fit a man for the medical profession, while about three months of training will make a man ready for the firing line

(Wife of a Country Doctor)

[Comment —We give space to the foregoing letter from a physician's wife principally because of the quotation from the *Wall Street Journal* The tremendous amount of misinformation that has been circulated regarding doctors during the past two or three months would be amusing were it not for the fact that some of the misinformation causes worry and anxiety when it is not necessary It applies not only to the number of deaths among physicians at the front in France, but also to the preparedness on the part of the medical profession to furnish its full quota of men for the Medical Reserve Corps and, on the other hand, to the impossibility of getting one tenth as many physicians for the Medical Reserve Corps as were needed If our correspondent will notice page 1917 of The Journal for June 23 she will notice that Colonel Goodwin has stated that there have not been 2 per cent of 60 000 deaths among physicians in the service See also Current Comment this week as to the actual facts regarding the casualties on the Western front —Ed]

Promotions in the Reserve Corps

The following comment on promotions in the Medical Reserve Corps is taken from the Army and Navy *Register*

Considerable interest has attached to the policy of the surgeon-general of the army in regard to the promotion of medical reservists who are on active duty at training camps and recruiting stations and other places It has been generally determined that, after a reasonable period considered as equivalent to not less than ninety days, the claims of these officers to consideration for advancement might be entertained No hard and fast rule has been adopted, however Much will depend on circumstances, and pretty much everything will devolve on individual capacity and fitness Least of all, will the employment of personal and political influence be of avail That process of bringing officers to the attention of the authorities should not be used It is certain to be more harmful than helpful in any individual case Medical reservists at the training camps will probably be recommended for advancement by their commanding officers Under such circumstances it will be a comparatively simple matter to pass on relative merits Officers elsewhere stationed may, in some instances, find it advisable to make application for promotion, but it is expected that their senior officers will have the welfare of the corps in mind and will see to it that in due time the junior members, who are serving usefully, will be brought forward as qualified candidates for promotion This statement is made from authoritative sources to supplement a shorter paragraph on the same subject published recently in these columns, which, as might be expected, attracted considerable attention and created a desire for further and more specific information on the subject of the promotion of the medical reservists

A Medical Advisory Committee for the American Red Cross

In order to provide expert advice for the War Council of the American Red Cross in questions of sanitation and public health arising out of war conditions a medical advisory committee has been appointed as follows Dr Simon Flexner, director of the Rockefeller Institute, chairman, Dr John W Kerr, assistant surgeon-general, United States Public Health Service, Dr Herman M Biggs, director of the New York State Department of Health, Dr William H Welch, dean of the School of Hygiene, Johns Hopkins University, Dr Frank Billings, professor of medicine, University of Chicago, Dr M J Rosenau, professor of preventive medicine, Harvard University, Mr Wickliffe Rose, director of the International Health Board, Dr Victor C Vaughan, professor of hygiene, University of Michigan, Dr Charles V Chapin, department of health, Providence, R I, Dr Richard P Strong, professor of tropical medicine, Harvard University, Dr Richard M Pearce, professor of research medicine, University of Pennsylvania

Ex officio members Col Jefferson R Kean, director-general, department of military relief, and Dr T W Richards, assistant director-general

A Tribute to the Doctor

The following editorial appeared in the Peoria (Ill) *Journal*

> Twelve Chicago doctors enlisted recently for service which will probably take them to the European battlefields According to the news reports, four of these doctors give up very large practices—and, as is generally known, a doctor's practice when once given up cannot be regained by the mere asking
>
> There is nothing especially unique in the announcement that twelve Chicago doctors enlisted for war service Peoria doctors have done the same thing, and doctors in thousands of cities throughout the country have voluntarily given up more or less remunerative practices in order to offer their services to their country during war times However, the enlistment of these thousands of doctors bears silent testimony of the rare traits which have characterized doctors since the very days of doctor pioneering
>
> In an address a few days ago, Henry P Davison, chairman of the war council of the American Red Cross, paid the following tribute to the doctors "The attitude of the doctors at this time is greatly gratifying Unselfishness and patriotism distinguish them The leaving of an established practice in order to do Red Cross work with practically no pay or in order to do field work at an insignificant salary surely puts the doctors down as men devoted to the best interests of the people and of their country"
>
> Mr Davison might just as well have gone further Not only is the doctor who leaves for war duty an unselfish and useful man but he comes from a class which does as much service for humanity, perhaps, as any other class—in times of peace as well as war
>
> Here's to the doctor If he makes big money he earns it He never turns down a sick patient because that patient does not happen to have a bank book full of money He works just as hard to relieve a poor man from suffering as he does to give relief to the millionaire He knows the family woes and the family griefs—and he keeps them to himself If he complains at being called from his bed at 3 o'clock in the morning, he doesn't carry his complaints to us

Premedical and Medical Students in Officers' Training Camps

Representative Osborne has introduced a bill providing that medical and premedical students in attendance at national reserve officers' training camps shall be placed in medical schools to complete their medical studies, and thereafter serve in the rank for which they shall have qualified The bill was referred to the Committee on Military Affairs

Personal —The following members of the Mercy Hospital staff, 1916-1917, have joined the Medical Reserve Corps of the U S Army Drs William R McKenzie, Erwin E Mayer, Bartus T Baggott, Thomas K Galvin, and Arthur F Peterson——Dr Richard O'B Shea of the staff has joined the Navy Medical Service——Drs Harry M Stein, superintendent of the University Hospital, and Drs Charles R Edwards, William H Toulson and John Evans have been commissioned first lieutenants in the Medical Reserve Corps Drs Toulson and Evans have already been assigned to duty——Drs Joseph L McLaughlin and Charles W Hoffman, of the staff of the Franklin Square Hospital, have received orders from Washington directing them to prepare to accompany the military forces to France These two physicians volunteered their services to the government several weeks ago

An Incident in the House of Commons

On June 7, Sir George Greenwood in the House of Commons asked the under secretary of war for England the following questions Whether a large number of American doctors had recently been sent by arrangement with the British government to treat British wounded soldiers in France whether the American degrees of such doctors had been recognized for this purpose, whether he was aware that American osteopathic doctors held similar degrees and diplomas to those held by the doctors so sent to treat British wounded in France and were equally qualified to practice in the United States and whether, in view of these facts he would give permission to American osteopathic doctors duly qualified in America to attend to and treat British wounded in this country in cases where the patients might so desire Mr Macpherson wrote in reply A large number of doctors commissioned in the army of the United States have been sent to Europe and many of the most eminent practitioners in the United States are included The American government has commissioned the officers sent and it is not proposed to look for any other security that these officers are qualified for the duties assigned to them

Courses for Assistant Naval Surgeons

Courses of instruction for medical graduates who have recently been appointed in the Medical Corps of the United States Navy are being given by prominent medical schools in Boston New York Philadelphia Chicago and San Francisco About twenty four students are enrolled at each place The course covers six weeks and will be repeated if necessary for another assignment of students This course is an abridgment of that usually given at the United States Naval Medical School at Washington D C. The course in Chicago is given by instructors jointly of the Rush Medical College and the University of Illinois College of Medicine Students are in attendance at classes six days of the week from 8 a m to 1 p m In the afternoon they go to the Great Lakes Naval Training Station for drill The subjects of the course are bacteriology chemistry clinical diagnosis genito urinary diseases hygiene ophthalmology otology parasitology psychiatry, roentgenology, serology surgery, tropical medicine medical zoology and official duties in the medical department.

Medical Students and the Draft

Surgeon-General Gorgas authorizes the statement that medical students will not be exempted from the draft but that they will be given conditional and limited furloughs to continue their medical studies

Orders to the Officers of the Medical Corps

Capt. W Cole Davis M C, to Wrightstown N J, as camp sanitary officer

Following officers M C to places specified as camp sanitary officers Major Charles C Billingslea Annapolis Junction Md Capts Ralph H Goldwaite Petersburg Va. William T Cade Little Rock Ark Neal N Wood Battle Creek Mich Edgar D Craft Des Moines Iowa Henry C Michie Jr Rockford Ill Luther R Poust Louisville, Ky Alvin W Schoenleber, Yaphank Long Island and Kerwin W Kinard Chillicothe Ohio

Major Archibald G Chittick M C, Indiana N G to Fort Benjamin Harrison for duty as instructor

Major Frederick O Waage M C, Pennsylvania N G, to Fort Oglethorpe for duty as instructor

Col George E Bushnell M C to report in person to Surgeon General of the army for duty in his office.

Major Ralph S Porter M C from Texas to New York City report to Brig Gen William L. Sibert prepared for extended field service

Officers of the Medical Corps to report for examination Majors Percy M Ashburn Henry S Greenleaf Chandler P Robbins and Perry L Boyer Capts William H Thearle Edward L. Napier and John R. McKnight Majors Jay R. Shook Ernest L. Ruffner and James F Hall Capts. Howard McC Snyder Condon C McCornack, Joseph E Bastion Taylor E Darby Samuel S Creighton Sidney L. Chappell and Thomas H Johnson Majors William N Bispham, Albert S Bowen Charles R Reynolds James L. Bevans and William W Reno Capts William H. Richardson Felix R. Hill Thomas J Flynn John J Reddy Edward G Huber Clarence E. Fronk Norman L. McDiarmid and William E Borden

So much of Par 90 S O 133 June 9 1917 War D as relates to Major F S Marcy M C revoked

Capt. Clarence E. Fonk M C to duty at Fort Des Moines

Lieut. Col. Joseph T Clarke, M C to Los Angeles for temporary duty

Lieut Cols Allen M Smith and Joseph T Clarke M C, to report to board at San Francisco for examination for promotion

Lieut Col Allen M Smith, M C to Portland, Ore, for temporary duty

Lieut Col Thomas J Kilpatrick M C from Fort Oglethorpe

The sick leave granted Major Robert B Grubb M C, is further extended two months

Capt William B Meister, M C, Los Angeles to Letterman Hospital Presidio San Francisco, for treatment

Capt Charles W Haverkampf M C, from West Point to Fort Oglethorpe to take charge of General Hospital

Capt Albert S Bowen M C now attached to Second Engineers National Army, is assigned to permanent duty that regiment

Medical Officers Ordered to Active Duty

ARIZONA

To report by telegraph to Commanding General Southern Department, for duty Lieut A A McDaniel Douglas

ARKANSAS

So much of Par 55 S O 121, May 25 1917 War D as relates to Lieut William L Ball Batesville revoked

CALIFORNIA

To Fort McDowell Lieut Walter K Scroggs Richmond

To report in person to Commanding General Western Department for duty from Fort McDowell Lieut Henry Lower Palo Alto

Par 56 S O 141 June 19 1917, War D relating to Capt John J Lisle Los Angeles revoked

Honorably discharged Major Philip F Colman San Francisco

COLORADO

To Cornell Medical College Capt J M Steiner Denver

CONNECTICUT

To home from active duty, Lieut Charles L. Hyde Southport

DISTRICT OF COLUMBIA

To Fort Hamilton Lieut Arthur J Hall Washington

To Walter Reed General Hospital Ga, Lieut Lucaner N Randolph Washington

GEORGIA

To Chicago Capt [illegible] Pierce Suwanee

To Ft McPherson Ga Lieut William N Adkins Atlanta.

To Washington D C, Lieut W C Brewer Atlanta

ILLINOIS

To Fort Benjamin Harrison Lieut Ralph H Kuhns Chicago

To Washington D C for instruction, Capt H H Fillinger, Algonquin

To Third Engineers National Army, Lieut Ira P Rice Oak Park

INDIANA

To Chicago Lieut J M Whisler, Wabash

To Fort Benjamin Harrison Lieuts Lee I Hunt Anderson O B Norman Bedford Forrest L. Reese, Bicknell Adrian E. Fame Ft Wayne and C I Bayer Indianapolis

To Rockefeller Institute for Medical Research N Y for instruction in laboratory work Lieut U G Goodwin Monticello

Honorably discharged Capt William I Clevenger Indianapolis

IOWA

To Fort Oglethorpe at Post Hospital, Capt William H Thomas McGregor

To Rockefeller Institute for Medical Research N Y for instruction in laboratory work Lieut T W Kemmerer, Davenport

KANSAS

To Fort Benjamin Harrison Lieut G T Johnson Wamego

LOUISIANA

To his home Lieut. Charles L. Gauden, Elizabeth

MARYLAND

To Baltimore as instructor in roentgenology, Major Frederick H Baetjer Cantonsville

To Fort Oglethorpe Lieut Edward D Ellis Baltimore.

To Washington D C Lieuts. Bartus Baggott H C Bean W P Dally William Neill Jr S D Shannon and H W Sweeney Baltimore

To Sixth Engineers for duty, Lieut Maynard J Simmons Indian Head

Par 17 S O 137 June 14 War D, relating to First Lieut Maynard J Simmons Indiana Head revoked

MASSACHUSETTS

To Rockefeller Institute for Medical Research N Y, for instruction in laboratory work Lieuts D J MacPherson, Boston, and George L. Schadt Springfield

So much of Par 27 S O 132 June 8 1917, War D, as relates to Capt A W Sellards Boston revoked

MICHIGAN

To Washington D C for instruction Capt Walter W Manton, Lieuts J B Seeley and H A Sullivan Detroit

So much of Par 64 S O 141 June 19 1917, War D, as relates to Capt Walter W Manton Detroit revoked

So much of Par 76, S O 132, June 8, War D, as relates to Lieut C E Burt, Ithaca, revoked

MINNESOTA

To Fort Oglethorpe for instruction, Lieut H L Stickney, Rochester

To Washington, Lieut Stanley R Maxeiner, Minneapolis

MISSOURI

To Chicago, Lieut C K Jones, Kingston

To Fort Riley for instruction, Lieuts Robert R Glynn, Springfield, and Joseph C Hynes, St Louis

To Washington for instruction, Lieuts J F Hardesty, Edgar F Schmitz, St Louis, and James W Rice, Kansas City

To Second Engineers, National Army, Capt Harry S Crossen, St Louis

NEBRASKA

To Fort Riley, Lieut Willis J Redfield, Grand Island

NEVADA

To Fort Riley, Lieut Frank Tinges, Caliente

NEW JERSEY

To Washington, D C, for instruction, Lieut H M Stein, Paterson

To New York, to Rockefeller Institute for course medical research, Lieut Frederic H Thorne, Greystone Park

NEW MEXICO

To Fort Bayard, to Army and Navy General Hospital, Capt Ignatz D Loewy, Silver City

NEW HAMPSHIRE

To Fort Ethan Allen, Vt, Capt Amos G Straw, Manchester

To Plattsburg, Capt Lee C Stillings, Surry

Honorably discharged, Lieut Ernest L Huse, Meriden

NEW YORK

To Fort Benjamin Harrison, Capt Arthur M Kane, Lieuts Joseph Rosenfeld, Brooklyn, Harry P Mencken, Long Island City, Winfield M Hartshorn, Philip Van Ingen and John W Warner, New York City

To Fort Hamilton, Lieut Ernest A Campbell, New York City

To Fort Niagara, Lieuts H L St John, Rochester, F W McSorley, Salem

To Fort Oglethorpe, Major John T Sprague, St George, and Lieuts Ernest L Hicks, Thomas F Lancer, New York City, R M Vose, Ithaca

To New York City, Capts Julius C Bierwith, Long Beach, L I, N Y

To Plattsburg, Lieut H A Benson, Kings Park

To Rockefeller Institute for Medical Research, N Y, for instruction in laboratory work, Capt Howard L Van Winkle, Albany, Lieuts W L Aycock, New York City, and S H Curtis, Troy

To Fort Wadsworth, Lieut Frederic H Coerr, New York City

To Washington for instruction, Capt Alfred H Thomas, Staten Island, Lieuts R B Rhett, Brooklyn, and Morris K Smith, New York City

With Sixth Engineers, Lieuts Robert E Buckley and Russell La Fayette Cecil, New York City

So much of Par 83, S O 136, June 13, 1917, War D, as relates to Lieut J J Steinfelder, New York City, revoked

So much of Par 83, S O 136, June 13, 1917 War D, as relates to Lieut N E Titus, New York City, revoked

So much of Par 61, S O 124, May 29, War D, as relates to Lieut William E Youland, Jr, Albany, revoked

To report by telegraph to the Adjutant General of Army for further orders, Lieut Samuel A Munford, Ithaca

OHIO

To Fort Niagara, N Y, Lieut A R Warner, Cleveland

To New York, to Rockefeller Institute for course in medical research, Lieut Harry Wahl, Cleveland

To Washington, D C, Capt Philip D Wilson, Columbus

OREGON

To Washington, D C, to the Army Medical School, Lieut Earl V Morrow, Portland

To report by telegraph to Commanding General, Western Department, Lieut Fred A Lieuallen, Portland

Honorably discharged, Lieut J A Pettit, Portland

PENNSYLVANIA

To Allentown, Lieuts John P Bethel, Philadelphia, and Elmer R Decker, Selinsgrove

To Fort Oglethorpe, Capt H Fox, Lieuts Thomas I O'Drain, Samuel R Skillern, Jr, and Charles M Strotz, Philadelphia

To Gettysburg, Lieuts Clinton A Kane and R A. Schless, Philadelphia

To New York, for instruction in medical research at Rockefeller Institute, Lieut C B Reitz, Allentown

To Washington, D C, for instruction, Lieuts John W Fredette, Pittsburgh, and James E McDowell, Philadelphia

To Ninth Engineers, National Army, Lieut Charles J Cavanaugh, Philadelphia

Honorably discharged, Lieut John H R Hemminger, Somerset

Resignation of Lieut William M Workman, Mt Joy, accepted

RHODE ISLAND

To Boston, with Fourth Engineers, National Army, Lieut John S Hodgson, Esmond

TENNESSEE

To Fort Oglethorpe, Lieuts George E Horton, Wartrace, and Albert T Ingalls, Chattanooga

UTAH

To Fort Douglas, Capt Harry N Mayo, Salt Lake City

So much of Par 83, S O 136, June 13, 1917, War D, as relates to Lieut H T Wickert, Huntsville, is revoked

VERMONT

Par 51, S O 136, June 13, 1917, War D, relating to Lieut Henry R Weston, Windsor, is revoked

VIRGINIA

To Fort Oglethorpe for instruction, Lieut R. B Shackelford, The Plains

To New York, to Rockefeller Institute for course in medical research, Lieut B L Crawford, Richmond

WISCONSIN

To Washington, D C, for instruction, Lieut T D Smith, Neenah

WYOMING

To Yellowstone National Park, Lieut Frederick H Sparrenberger, Fort Yellowstone

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest, such as relate to society activities, new hospitals, education, public health, etc)

CONNECTICUT

University Receives Money—Yale University has received pledges to the amount of $250,000 for the endowment fund of the School of Medicine, and also $260,000 for the equipment of the Yale Mobile Hospital Unit

Completion of Memorial Laboratory—The Brady Memorial Laboratory, which was presented to Yale University as a memorial to the late Anthony N Brady has been completed at a cost, with the equipment, of approximately $175,000 It is situated on the grounds of the New Haven Hospital and will house the departments of pathology, bacteriology, pathological chemistry, obstetrics and gynecology and medicine

ILLINOIS

Fund for Evanston Hospital—The campaign to raise $150,000 for the Evanston Hospital, contingent on which Mr James A Patten's gift of a similar amount to the hospital was made, will commence July 1

Safeguarding Interests of Physicians During Military Service—The Adams County Medical Society has taken steps to provide for the families of members who are called to the front and also to secure the practices of these physicians until their return to civil practice.

Personal—Dr William M Hanna was elected medical director of the Illinois Encampment of the Grand Army of the Republic at its meeting in Bloomington, June 8——Dr Wilbur E Post is a member of the commission which has left for Russia, under the chairmanship of Dr Frank Billings

Lecture on Poliomyelitis—Dr Ludvig Hektoen, head of the department of pathology and bacteriology in the University of Chicago, and director of the Memorial Institute for Infectious Diseases, delivered a lecture on poliomyelitis at the University of Illinois College of Medicine, Chicago, June 28

A New Method of Working the Doctor—A physician of Galesburg, who asks that his name be not mentioned, writes

> A man called at the office giving his age at 62 years, with sandy mustache, 6 feet tall, blue serge suit, soft shirt and collar, fibrous tumor on right side of lower jaw, rectal fistula, opening about 2 inches to left of anus Gave his home as Urbana, Ill He made all arrangements for operation, engaged his room at hospital and a special nurse to care for him, but did not want to go to the hospital until he heard from his brother, who was to send him a check to defray expenses and also was to be present at operation The second day he reported to me that he had received a letter from his brother who would be unable to be present at the time of operation He gave me his brother's address and told me to wire his brother after the operation He also presented me a check for $200 which his brother had sent him and asked to deposit it in the bank to my credit I took him to the bank and he deposited $150 to my credit, taking $50 in cash, which he said he wanted to buy handkerchiefs, bath robe and night gowns for use at the hospital He told me later that his niece would

probably be present. The result is the nurse reported at the hospital but the old man never appeared at the hospital. He simply got the money and left town. Telephone communications with Urbana reveals no such person.

INDIANA

Safeguarding Interests of Physicians During Military Service.—The Indianapolis Medical Society has adopted measures for safeguarding the personal interests of members who are called into active military service.

Interns Win Strike.—The staff of interns at the Indianapolis Hospital which went on strike June 15 because a colored physician had been named as intern at the hospital returned to their duties at the hospital the next day on being notified that the intern had been dismissed.

Health Board Changes.—At the annual meeting of the Indianapolis City Board of Health Dr Gustavus B Jackson was reelected president, Dr Thomas B Eastman vice president and Dr Herman G Morgan secretary.——Dr Edward J Dubois city bacteriologist was given an indefinite leave of absence to cover his term of service as camp bacteriologist at Fort Benjamin Harrison.

New District Officers.—Ninth District Medical Association at Noblesville May 24 president Dr Fred A Dennis Crawfordsville vice presidents Drs Omer D Hutto Kokomo and Alvin R Kerr Melott secretary treasurer Dr Herman A Beck Lebanon.——Fourth District Medical Association at Greensburg May 22 president Dr Elmer L Wood Columbus.

Physician Wins Verdict.—In the case of Dr William A Oler Ober against the Eastman Hospital and Dr J Rilus Eastman, Indianapolis in which $10 000 damages was asked on account of alleged neglect in an operation for appendicitis on the 2 year old son of the plaintiff Dr Eastman introduced expert evidence that the operation had been scientifically intelligently and skilfully performed and the jury returned a verdict in his favor.

Personal.—Dr Alexander P Gammack South Bend who has been serving with the Royal Army Medical Corps in France has received the "Croix de Guerre"——Dr Paul J Martin has returned to Indianapolis after a year in the War Hospital Pardubitz, Bohemia and the American Red Cross Hospital Vienna.——Dr William Harrison Kokomo, was operated on for appendicitis at the Good Samaritan Hospital June 26 and is reported to be doing well.——Dr Harry L Sharrer Hammond has been appointed chief surgeon for the New York Central Lines for the Chicago district.——Dr Jehu Z Powell Logansport is under treatment for gallstone disease in St. Vincent's Hospital, Indianapolis.——Dr Jonathan E. Canada Fort Wayne has been appointed assistant medical examiner for the Norfolk and Western system.——Dr Eugene B Mumford has been appointed director and Dr Homer W Cox, physician in charge of the Summer Mission for Sick Children at Fairview Settlement, Indianapolis, which opened to receive patients July 2.

IOWA

Safeguarding Interests of Physicians During Military Service.—The physicians of Des Moines County have taken action to protect the interests of physicians who are called to the colors.

KANSAS

Society Provides for Military Members.—Kingman County Medical Society has taken action to provide for the interest of members commissioned in the Medical Officers Reserve Corps and called into active duty.

State Board Election.—At the annual meeting of the State Board of Medical Examiners in Topeka June 19, Dr George Morris Gray Kansas City, was reelected president and Dr Henry A. Dykes Lebanon was reelected secretary. Twenty graduates of the Kansas medical schools took the examination for license to practice.

Meeting of Health Officers.—At the annual meeting of the Kansas State Association of Public Health Officers, held in Kansas City, Mo, the following officers were elected president, Dr Burton K. Kilbourne, Minneapolis, vice president, Dr Harry L. Aldrich, Caney, and secretary-treasurer, Dr J Carroll Montgomery, Manhattan.

Decatur-Norton Officers Show Patriotism.—At the meeting of the Decatur-Norton Medical Society, resolutions were adopted commending for their patriotism, physicians who have entered the military service and agreeing to assist in relieving the financial burdens of those so called by attending to the practice of the absent physicians and on their return giving back their practice and deploring and discouraging the attempt of physicians to locate permanently in a community temporarily vacated by a physician who has gone to the front.

MARYLAND

New Base Hospital.—The University of Maryland base hospital unit is rapidly assuming shape. It will be a duplicate of the Johns Hopkins unit, with twenty six doctors sixty five nurses and seventy five enlisted men. Dr Frank Martin has been commissioned major, Dr Archibald C Harrison major, Dr Arthur M Shipley and Dr Cary B Gamble captains and Dr G Perry Ross first lieutenant. The organization is in charge of Dean James M H Rowland of the University of Maryland.

Transfer of Quarantine Deferred.—The Baltimore city authorities are reconsidering the transfer of the Quarantine Station to the United States Public Health Service. Reports that New York has decided to retain control of its quarantine station for the purpose of maintaining an open port are said to have caused the postponement of the transfer indefinitely. The Public Health Service was scheduled to take charge this week the federal government having agreed to pay the city $177 000 for the buildings grounds boats and other equipment. Municipal officials now fear that federal control of the station would shut Baltimore out of what they call "an open port" and thereby seriously cripple its business. The agreement to turn the station over to the Public Health Service was contingent on federal control of the stations in New York Philadelphia Boston, Norfolk and elsewhere on the Atlantic seaboard.

MICHIGAN

Safeguarding Interests of Physicians During Military Service.—The Wayne County Medical Society will post in its club house a list of its members who go to war. It has also constituted a committee to care for the dependents of these physicians.

MINNESOTA

Safeguarding Interests of Physicians During Military Service.—The Hennepin County Medical Society has appointed a committee to look after the interests of the younger physicians who go to war. It also adopted a plan to provide medical relief for families of men in service. This plan will be carried into effect in cooperation with the American Red Cross. The Nicollet-LeSueur County Medical Society has adopted a similar measure.

MISSISSIPPI

Safeguarding Interests of Physicians During Military Service.—The Forrest County Medical Society has taken action to safeguard the interests of members who enter the army.

MISSOURI

Safeguarding Interests of Physicians During Military Service.—The Missouri State Medical Association has constituted a committee to formulate plans for caring for the practice of physicians called to service in the army and navy, and has asked the cooperation of all practitioners in the state. Component county societies will be asked to approve these plans.

NEVADA

Resolutions to Abrogate Patent on Salvarsan.—At a recent meeting of the Washoe County Medical Society in Reno, resolutions were adopted advocating the abrogation of the patents on salvarsan similar to those adopted by the Chicago and St Louis medical societies.

Personal.—Dr M Rollin Walker is taking some special roentgenologic work in the Chicago clinics.——Dr Henry Ostroff Reno has been appointed district surgeon for the Southern Pacific system, to succeed Dr William H Hood, Reno, resigned after more than twenty years' service.

NEW HAMPSHIRE

Safeguarding Interests of Physicians During Military Service.—The Belknap and Grafton County Medical societies have arranged to conserve the practices of members called into the medical service of the government.

NEW MEXICO

Safeguarding Interests of Physicians During Military Service—The Santa Fe County Medical Society has taken action to protect the interests of members who volunteer for active service during the war

NEW YORK

Sanatorium Plans Approved—The state board of health has approved the plans and specifications for the new tuberculosis hospital for Rensselaer County Bids were opened, July 2

Convalescent Home Opened—The Jewish Home for Convalescents at Grandview-on-Hudson was opened, June 17 The building cost $100,000 and has accommodations for 300 patients It is supported by the Federation of Roumanian Jews

War Cross for Schenectady Physician—Dr Charles Briggs, Schenectady, attached to the Norton-Harjes Ambulance Unit of the American Red Cross has received the war cross for courage and devotion, the cross being bestowed at a special ceremony held at the front by General Dauvin

State Law May Bar Liquor Advertisements—Under the Hill-Wheeler local option law recently signed by Governor Whitman, newspapers containing liquor advertisements cannot be circulated through the mails in the 500 "bone dry" towns in this state, nor in cities that may go dry under this law William H Anderson, state superintendent of the Anti-Saloon League, has written to the postmaster-general that this is the construction which must be placed on Section 30 of the Raines Liquor Tax Law

Safeguarding Interests of Physicians During Military Service——The Medical Society of the State of New York has adopted a plan for aiding members who enter the medical services of the country——The Kings County Medical Society, the physicians of Rochester and the Wyoming County Medical societies have approved this action of the state organization——The Albany County Medical Society has taken a like action——About 300 medical men of Buffalo adopted resolutions looking toward conserving the practices of physicians who are called to the colors

Civil Service Examinations—The state civil service commission announces that the examinations for the following positions in the state, county and village service will be held, July 28 assistant chemist, public service commission, first district, salary $1,200 to $1,500, men only, graduate chemists with two years' practical experience, sanitary engineer, state architect's office, salary $1,800 to $2,500, four years' satisfactory experience in sanitary engineering, physiologic chemist, state department of health, salary $1,500, at least three years' practical experience in physiologic and biologic chemistry Applications should be addressed to the State Civil Service Commission, Albany, and should be received at the office of the commission on or before July 18

New York City

Ambulance Donated—The National Association of Credit Men has voted to send two field ambulances to France, as memorials to two of its deceased presidents, James Graham Cannon of New York and John Field of Philadelphia Funds have been appropriated to maintain the ambulances for six months

Memorial to Dr Bangs—A bronze memorial tablet to the memory of Dr L Bolton Bangs which has been placed in the foyer of the New York Post-Graduate Medical School and Hospital was unveiled by the board of directors and faculty of that institution, May 29 Addresses were made by Drs Frederic E Sondern, Clarence C Rice and James Pedersen and Bishop Courtney

Columbia War Hospital—Lieutenant-Colonel Schreiner of the Medical Corps has been sent from Washington, D C, to inspect the building of the Columbia War Hospital, which is now nearing completion and which is designed for use as a receiving and forwarding hospital for the army medical service Colonel Schreiner favors the taking over of the hospital by the government.

Personal—Dr Moses Kahn, who has been absent for six years, during which time he has been devoting himself to the study of tuberculosis, has resumed his practice in Brooklyn ——Dr Marcus B Heyman has been appointed medical superintendent of the Manhattan State Hospital, Ward's Island ——Dr Jacob L Maybaum has been appointed instructor in laryngology in the New York Post-Graduate Hospital

New York's Red Cross Fund—When the city officially closed the Red Cross campaign on June 26, it announced a total of $37,847,893, a little more than $2,000,000 short of the allotted $40,000,000 The shortage is being gradually decreased and it is believed will in a short time be made up The New York Chapter of the Red Cross has started a campaign among the city's employees, numbering 160,000, to raise one million dollars

Award of the Seaman Gold Medal—The Seaman gold medal, given by Dr Louis Livingston Seaman, and annually awarded by the American Museum of Safety for progress and achievement in the promotion of hygiene and the mitigation of disease, has been conferred on the Julius King Optical Company for scientific research and progress achieved in overcoming the harmful effects of ultra-violet and infra-red rays of light in connection with arc-welding and other industrial processes at very high temperatures

Health Department Abandons Diazo Test—The diagnostic laboratory of the department of health announces that last year 1,700 specimens of urine were examined for the diazo reaction Of this number less than 250 gave a positive reaction As there is great doubt expressed as to whether this gave a real assistance to the physician in arriving at a diagnosis, the department feels that the time consumed in this work might have been better employed It has therefore decided to discontinue the examination of specimens for the diazo reaction

Again a Safe and Sane Fourth of July—New York has this year followed the policy pursued for some years of endeavoring to eliminate Fourth of July accidents The celebrations included patriotic meetings, addresses, music in the parks and a rally in the city college stadium In 1903 there were 415 persons in the United States that developed tetanus following Fourth of July pistol and firecracker wounds In 1908 there were seventy-six such cases with fifty-five deaths, while last year there was only one case recorded and this occurred in New York

Newspaper Bans Patent Medicine Advertisements—The *Harlem Local* of New York has written a letter to the health department stating in strong terms the stand it has taken against patent medicine advertisements It writes "We shall continue to refuse to accept advertising not only of scurrilous patent medicine tradesmen, but also of liquor and tobacco manufacturers We have our own convictions as to the uses and abuses of these wasteful and nerve eating drugs and do not propose to be a party to their exploitation, directly or indirectly"

Shortage of Nurses Confronts City—It is reported that the shortage of professional nurses in New York has assumed such serious proportions as to alarm the committee on nurses of the mayor's committee on national defense It is stated that the Red Cross alone has been draining the resources of the country at the rate of 200 nurses a month and this did not include the nurses attached to the base hospital units In order to ascertain just how serious this shortage is, the committee is taking a census of all the nursing resources of the city with the view of establishing a bureau through which effective readjustments of trained and volunteer service can be made

To Train a Reserve Corps in Child Welfare Work—The Bureau of Child Hygiene of the department of health is prepared to give a series of short courses in practical methods of infant and child feeding and care These courses are to be open to many women who desire to have a working knowledge of this type of preventive health work The courses will be given in the fifty-nine baby health stations of the department of health The courses will be of six weeks' duration and are open to women between the ages of 21 and 45 They are intended to offer a practical way to share in the duty of conservation of child life and in the prevention of the high infant mortality and morbidity which European nations at war have experienced The department of health intimates that it may possibly need assistance of this nature in the future and wishes to have trained women available in emergency

Patent Medicine Registration Proceedings—The long delayed test case involving the validity from the constitutional standpoint of that section of the Sanitary Code which requires the registration of patent or proprietary medicines in the department of health, has been submitted to the appellate division of the supreme court of the first department for decision This case arose out of injunction proceedings instituted by Messrs H Planten and Son, Charles W Crittenton and Fougera and Company. While these proceedings have been pending the department of health has not enforced the provisions of this section. If the court decides that the enactment of the section is within the powers and validity vested in the board of health and is a reasonable exercise of such power, and therefore a constitutional and valid provision of law, the department will be in a position to start proceedings to enforce compliance with the terms. Although the department has complied with its agreement in not compelling registration pending this litigation, more than 3763 preparations have been voluntarily registered with the department of health on application made by 1070 persons or firms.

OHIO

Safeguarding Interests of Physicians During Military Service.—The Ohio State Medical Association adopted a resolution at its Springfield meeting recommending that component county societies take action to care for the practices of physicians commissioned in the Medical Reserve Corps. ——The Academy of Medicine of Toledo and Lucas County has established a patriotic fund to care for the families of physicians absent from their practices while in active military service. Each physician who does not enlist will be taxed 2 per cent of his income payable monthly for this purpose.

OREGON

Safeguarding Interests of Physicians During Military Service.—The Portland City and County Medical Society has inaugurated a voluntary subscription to provide for the needs of the families of members who offer their services to the country. It is expected that the fund will amount to $25 000 or $50 000 within a year.

PENNSYLVANIA

Safeguarding Interests of Physicians During Military Service.—The Philadelphia County Medical Society has arranged to care for the practices of members called to the colors during the absence of these physicians, 35 per cent of the fees being transmitted to the account of these absent members.——Allegheny County has taken similar action.

Philadelphia

Older Physicians Urged to Serve in Hospitals.—Physicians too old to serve in the military medical and surgical corps should organize and fill the vacancies in the hospitals made by the departure of young physicians for the front, according to Dr Hobart A Hare, surgeon of the Coast Defense Reserves, who spoke before the emergency session of senior medical men for service in war time in the College of Physicians.

City Gives More than a Million for Medico-Chirurgical Buildings.—The city will pay $1 036 000 for the Medico-Chirurgical College and Hospital, Cherry and Eighteenth streets, the buildings to be torn down and the land used for the parkway. This sum was agreed on by the city, the members of the Medico-Chi and University of Pennsylvania faculties. The buildings used for hospital purposes will remain standing during the war according to arrangements made by the mayor and the navy department which will assume direction of the hospital.

Personals.—Dr George Woodward has been elected president of the Philadelphia Art Alliance.——Dr Robert Goodman has been made assistant medical instructor of the bureau of health.——Dr Edward E Montgomery was elected president of the Philadelphia branch of the national wartime prohibition committee at its recent meeting. The other officers are executive secretary, Horace Geiger; treasurer, William R Nicholson; vice presidents, Bishop Rhinelander, Edwin Madison Taylor, Dr Ernest LaPlace, Prof William E Lingelbach, Dr Judson Daland, Louis J Kolb, Dr Leo S Rowe; executive committee, Dr Edwin H Parkin, Dr Edward E Montgomery, Dr Rufus W Miller, Albert Cross, Homer W Tope.

Medical Institutions.—The Methodist Episcopal Hospital having been chosen by the United States government as a navy base hospital, the board of managers of the institution has decided to increase its facilities. Plans have been prepared by the architect for a large addition and the remodeling of the fourth floor of the present administration building. The addition will be four stories high with a basement 120 by 76 feet of fire proof construction with exterior walls of brick trimmed with terra cotta. The basement will be devoted to storage and locker rooms for the clothing and effects of the incoming patients. The entire first floor will contain a complete Roentgen-ray laboratory department. The second floor will be public and semiprivate wards and maternity cases will occupy the third floor.——At a recent meeting of the trustees of the German Hospital it was decided to change the name of the institution to the Lankenau Hospital in order to perpetuate the memory of John D Lankenau who left his entire fortune to the German Hospital and the Mary Drexel Home. His estate was valued at $1 500 000. The present year is the one hundredth anniversary of Mr Lankenau's birth and the board deemed it a fitting time to apply his name to the institution.

RHODE ISLAND

State Board of Health Changes.—Dr Byron U Richards, Pawtucket, became secretary of the state board of health July 1, succeeding Dr Gardner T Swarts, Providence. Dr Swarts has resumed practice in Providence.

TENNESSEE

Safeguarding Interests of Physicians During Military Service.—Nashville physicians have agreed to cooperate in caring for the interests of physicians who go with the Medical Corps of the Army.

VIRGINIA

Tuberculosis Clinics.—Dr B Lawrence Taliaferro of the Catawba Sanatorium conducted a series of clinics in Norfolk June 25 to 27 under the auspices of the Virginia Anti-Tuberculosis Association.

Personal.—Dr Lazarus Karp, Richmond, has been elected state representative to the American Jewish Congress.——Dr Charles J Andrews has been elected president of the Norfolk branch of the Medical Hygiene Society.——Dr Lucien Lofton has been elected medical inspector of the Richmond Health Board.

New Hospital Buildings.—Citizens of Richmond have subscribed $225 000 for the erection of a hospital for colored patients and Major James H Dooley has given $40 000 for the erection of a hospital for contagious diseases. The buildings now under construction are to be a part of the present Memorial Hospital which is the teaching hospital of the Medical College of Virginia.

WASHINGTON

Safeguarding Interests of Physicians During Military Service.—The Washington State Medical Association has recommended to its component societies for their adoption a plan for assisting families of physicians who go to war.

Medical Contracts Filed.—Up to June 14 more than 1 000 contracts had been received by the first aid board of the state in accordance with the provisions of the new law which became effective June 7 under which a new medical aid board was created, this board being allowed to make business arrangements either with contract doctors or with individual physicians. Employees in hazardous industries are assured payment for the first aid treatment following an injury, as well as compensation under the industrial insurance act.

New State Officers.—The twenty-eighth annual meeting of the Washington State Medical Association was held in Spokane June 20 to 22 and the following officers were elected: president, Dr C Stewart Wilson, Tacoma; vice presidents, Drs Wilmot D Reed, Tacoma, and Russell T Congdon, Wenatchee; delegate to the American Medical Association, Dr Henry H McCarthy, Spokane; alternate, Dr Frederick Epplen, Spokane, and trustees, first district, Drs Hiram E Cleveland, Burlington, and John W Hunt, Seattle, and second district, Drs Herman P Marshall, Spokane, and Cornelius J Lynch, North Yakima. Tacoma was selected as the next place of meeting.

CANADA

Canadian Soldiers Invalided.—Returns just received in Canada from the Director of Medical Services in London, England, show that on June 1 the number of Canadian soldiers invalided in the United Kingdom fell from 22,562 to 22,482, while the number of Canadians in non-Canadian institutions fell by 635.

Hospital News.—The new military hospital at Queen's University, Kingston, Ont., is now ready to receive two hundred returned convalescents.——At a meeting of the governors of Hamilton General Hospital, June 27, the offer of Colonel MacInnes to furnish a ward in the new hospital in honor of the memory of his father, the late Senator MacInnes, and of Dr Albert Pain and Mrs Pain, who went down with the *Titanic*, was accepted

Personal—Capt Archibald Naismith, M D, son of Dr Archibald D Naismith, Staffordville, Ont, who has been two years in France with the 101st Field Ambulance, has been awarded the military cross——The Hon Dr Robert S Thornton, Deloraine, minister of education, Manitoba, was in Toronto the past week and addressed the Ontario Medical Council on one uniform medical examination for all Canada for license to practice

Ontario Medical Commission—The counsel for the Christian Scientists argued before the Ontario Medical Commission on June 28 that a person under the British law has the right to any treatment he desires when sick, or none at all As far as the Ontario Medical Act was concerned, a man had the right to die if he wanted to, although the criminal code would bear on that phase He further argued that the law allows a man the liberty of saying whether he will be attended by a regular practitioner or not The only question under the act is that of fraud Under the laws of Ontario, he said, Christian Scientists are not recognized any more than any other religion or sect "It is doubtful whether in a strict legal sense, Ontario is a Christian province at all" Counsel for the different schools of healing gave information as to court decisions bearing on chiropractors, osteopaths, Christian Scientists and other practitioners in the province It was contended that there have practically been no legal decisions which throw any light on their legal status in Ontario Mr H S Osler, K C, counsel for the College of Physicians and Surgeons, said that if the argument was reduced to a question of fraud, then the public should be protected against fakirs and humbugs

Ontario Medical Council—The Ontario Medical Council met in Toronto during the week ending June 30 under the presidency of Dr Edmund E King, Toronto The following officers were elected for the ensuing year president, Dr William E Crain, Crupler, Ont, vice president, Dr Robert Ferguson, London, Ont, registrar-treasurer, Dr H Wilberforce Aikins, Toronto (reelected)——Among questions discussed by the council was that of disciplining the practitioner in Ottawa, Ont, in a child substitution case of interest to Chicago and Ontario physicians The doctor in question was found guilty of disgraceful conduct in a professional respect and his name ordered struck off the register of the college——The federal government will be memorialized to take steps to prevent the sale of all patent or proprietary medicines containing alcohol content in excess of 2 5 per cent It was alleged that one widely advertised patent medicine was a wine which contains 17 per cent of alcohol and that it is of little medical value——Newspapers were criticized and a resolution was passed calling the attention to certain patent medicine advertisements, as they were a violation of the Ontario Temperance Act——A committee reported recommending that graduates of a number of American colleges be allowed to practice in Ontario without attending school for one year, provided they pass the examinations A similar arrangement, of course, must be agreed to by the American states affected——Before the next meeting a committee will gather information on the alarming menace of venereal diseases——It was decided that a special committee should take a military census of the medical profession in Ontario It is felt that although a large number of Ontario physicians are already on active service, a great deal more can still be done, as in some places a medical man might be able to do the work of his confrere and thereby relieve one man to go to the front It is understood that a similar census will be taken in all the provinces of Canada, and the report when completed be placed in the hands of the Dominion government——A resolution was passed urging that there should be only one qualifying examination in medicine for the whole Dominion of Canada instead of one for each province as at present

GENERAL

Meningitis in Naval Camp—Spinal meningitis is reported to have broken out in Camp Dewey, Kitemaug, where nearly 200 junior naval reserves are encamped Two cases have been reported and the camp is under quarantine

Ophthalmic Examinations—The American Board for Ophthalmic Examinations announces that the next examination will be held at Pittsburgh, October 30 Those who desire to take the examination and be certified by the board should secure application blanks and further information from the secretary, Dr Frank C Todd, 506 Donaldson Building, Minneapolis Application should be made before August 1

Sanatoriums Hold Meeting—The fifth annual meeting of the Southeastern Sanitarium Association was held in Greenville, S C, May 9 and 10 and the following officers were elected president, M M McCord of North Carolina, vice presidents, Dr Richard C Smith, Newport, Tenn, C B Reynolds of North Carolina, Francis A Coward, Columbia, S C, and A B Wood of Georgia, and secretary-treasurer, Clarence F Smith, Greenville, S C

Change of Meeting Place—The annual meeting of the National Medical Association of Colored Physicians, Dentists, Pharmacists and Nurses, which was scheduled for Memphis, Tenn, in August, has been changed, and will now be held in Philadelphia, August 28 to 30 The change has been made in response to an invitation extended jointly by the Philadelphia Academy of Medicine and Allied Sciences and the Northeastern Medical Association

Personal—Surgeon Thurlow W Reed, Norfolk, Va, on duty at the Naval Station, Cavite, P I, who was operated on for appendicitis at the United States Naval Hospital, Canacao, P I, May 4, has recovered and returned to duty——Dr Harrison J Hunt, surgeon of the Crocker Land Expedition, which went to the Arctics in 1913, has arrived in New York and reports that he left the expedition at North-Star Bay on December 18 Dr Hunt made a sledge journey over the ice to Melville Bay

Bequests and Donations—The following bequests and donations have recently been announced

Maimonides Hospital, Chicago, $20,000, partial proceeds of a bazaar held June 18 25

Montreal General Hospital, $500,000 Faculty of Medicine of McGill University, $500,000, and Montreal Maternity Hospital, $100,000, by the will of Sir Samuel McDonald, Montreal

Southampton, L I, N Y, Hospital, $90,000, by the will of Mrs May Rock, Bayport, L I

German Hospital, Brooklyn, $5,000, Jewish Hospital, Brooklyn, $2,000, by the will of Marie Dade

Albany Alumni Elect—The forty-fourth annual meeting of the Alumni Association of Albany Medical College was held in Albany, June 8, and the following officers were elected president, Dr Robert B Lamb, Beacon, N Y, vice presidents, Drs Daniel C Case, Slingerlands, N Y, C S Pratt, Watertown, N Y, Frederick C Leonard, Carbondale, Pa, Tiffany Lawyer, Albany, N Y, and Norman Baldwin, Oneonta, N Y, recording secretary, Dr Jesse M Mosher, Albany, N Y, corresponding secretary, Dr Clinton B Hawn, Albany, N Y, financial secretary, Dr Robert Babcock, Albany, N Y, and historian, Dr Arthur J Bedell, Albany, N Y

New England Alumni of Maryland Dine—The New England Alumni Association of Maryland University School of Medicine, Baltimore, held its eighth annual reunion and banquet in Boston, June 12, and elected the following officers president, Dr George C Parcher, Saugus, Mass, vice presidents, Maine, Dr Lawrence E Willard, Saco, New Hampshire, Dr Fred von Tobel, Lebanon, Vermont, Dr Frank C Angell, Randolph, Massachusetts, Dr Richard H Morris, Everett, Rhode Island, Dr Frederick R Devine, Riverside, and Connecticut, Dr Timothy M Ryan, Torrington, and secretary-treasurer, Dr Abraham K Yoosuf, Worcester, Mass

Civil Service Examination—The United States Civil Service Commission announces an open competitive examination for physicians, for men only to fill present and future vacancies in the position of physicians in the Indian Service, with salaries ranging from $1,000 to $12,000 a year, in the Panama Canal Service, with salaries of $1,800 a year, as acting assistant surgeon in the Public Health Service, with salaries from $480 to $1,800 a year, and as surgeon and assistant surgeon in the Coast and Geodetic Survey, with salaries of $1,200 a year with 20 per cent additional while serving in the Philippine Islands Applicants must have graduated from a medical school of recognized standing or must furnish proof of actual graduation within six months from date of graduation They must have reached their twenty-first birthday on the date of examination, but eligibles more than 40 years of age on the date of examination will not be considered except for filling vacancies in the positions of acting assistant surgeons in the Public Health Service and eligibles who are less than 22 or more than 30 years of age on the date of examination will not be considered for positions in the Panama Canal Service Application should be made for Form No 1312, stating the title of examination desired, to the Civil Service Commission, Washington, D C, or to local civil service boards

PARIS LETTER

Paris June 7 1917

The War

TREATMENT OF COMPLICATED FRACTURES OF THE THIGH IN THE SURGICAL FORMATIONS AT THE FRONT DURING PERIODS OF GREAT ACTIVITY

G Lardennois at the meeting of the medical corps of the Third Army called attention to this subject and to the impossibility of transporting directly by carriage to the specialized formations a man with a fractured thigh On the other hand in the surgical ambulances of the advance or the evacuation hospitals of the first line the material and the time available may prevent the utilization of complicated methods The surgeon in these formations should (1) disinfect the wound (2) reduce the fracture and (3) secure apposition of the fragments His duty is to render the wounded evacuable to the fracture center of the region The prognosis depends on this first intervention The disinfection comprehends (1) the excision of dead tissues, (2) the removal of the projectile (3) removal of splinters and fragments and (4) the establishment of drainage Lardennois insists on the necessity of free drainage One or two drains are of no use They quickly become occluded One must make an open trench or canal which will permit the outflow of the serum and a survey of the broken bones Whenever wounds are made by one or more projectiles Lardennois always has recourse to posterior drainage which will drain in the dorsal decubitus For fractures of the middle third and the inferior third he utilizes the space between the biceps cruralis on the outside and the semimembranosus and semitendinosus on the inside For subtrochanteric fractures he incises vertically exterior to the long portion of the biceps below the gluteus maximus which must be displaced sometimes 1 or 2 cm to give an opening Free access to the bone must be maintained for eight days at least with large drains placed at angles to the wound with separators or with careful maneuvers in the course of the dressings The wound disinfected the fracture must be reduced at once and the limb placed in a trough (*gouttière*) If the wounds are too extensive to permit of the application of a plaster dressing a simple Thomas splint will assure a good reduction maintained by extension the limb being placed in flexion and abduction This apparatus permits of moving the patient without pain and without danger Whenever it is possible Lardennois applies a plaster dressing The plaster dressing holds the wounded limb in good position flexion abduction and external rotation are more marked the higher the seat of the fracture The thigh is flexed on the pelvis and the leg on the thigh This position is maintained despite the fact that the limb can move in the cast under the effort of muscular contraction Overlapping of the fragments is impossible The points of bearing of the plaster are the wing of the ilium and the calf of the leg These regions must be well padded with cotton The whole posterior surface of the thigh is free of the plaster permitting posterior drainage The windows permit observation of the wounds On account of the position the patient is able to maintain a semisitting position in the bed or he may be placed in an armchair He can be moved easily and carried to the dressing room or to the roentgenography room He can be evacuated if the roentgenogram shows good reduction and if the local and general symptoms permit Usually at the end of eight or ten days he is able to be transported by sanitary train to the fracture center of the army where he may be left in a cast the Alquier apparatus may be applied suspension used or better yet he may be placed in a Delbet apparatus

Decherf said that the ultimate results of the treatment of complicated fractures had not always been very brilliant In the interior a great number of angular femurs were observed, with shortening varying from 6 to 18 cm This angular deformity is due to the action of the psoas muscle and the glutei which draw the lower end of the upper fragment upward and outward This deformity is observed most frequently in fractures of the superior and middle thirds of the femur On the contrary in fractures of the inferior third supracondyloid fractures, the deviation of the inferior fragment is conditioned on the action of the calf muscles These muscles draw the upper extremity of the inferior fragment backward so that the lower end of the upper fragment points forward under the skin In the treatment of complicated fractures of the thigh suspension is popularized in the effort to avoid all vicious unions By this procedure, combined with extension and abduction a maximum of straight reductions of the thigh with a minimum of shortening is obtained In addition the ease with which dressings are made avoids pain to the patient The suspension apparatus comprises a hammock trough supporting the limb, supported above the plane of the bed by a system of cords running through pulleys The traction apparatus is composed of strips of bandage terminating at the foot in two loops and held in place by adhesive bands about the leg The loops hold a bar of wood to which is attached a cord and a weight

The advantages of suspension are 1 Facility in dressing The thigh being maintained above the plane of the bed the wound is easily inspected by merely raising the hammock without moving the patient hence the dressings do not cause the patient any pain 2 Facility of moving the patient even for his hygienic care the patient easily raising himself without the least pain 3 Inspection of the wounded member At each dressing the thigh is uncovered and the course of healing may be observed If one of the fragments becomes displaced the deviation may be corrected immediately a flaring up of any purulent condition or a lymphangitis will be detected 4 There is no sloughing of the heel or malleoli 5 Early massage—the first day—is given the knee and the muscles of the thigh 6 Union appears to be more rapid because of greater circulatory activity, the edema of the leg disappears rapidly in two or three days

Emile Giron emphasized the advantages of the Thomas apparatus employed by the English Before it was brought to his attention he had employed an apparatus constructed by a village mechanic This apparatus was a sort of Thomas splint made of hollow tubes light and inexpensive which immobilized the fracture very well Extension was secured by a leather boot having a wood sole with a hole in it

TREATMENT OF INFECTED WOUNDS BY MEANS OF HELIOTHERAPY

Leriche associate professor of the Faculty of Medicine at Lyons has addressed to the Societe de chirurgie de Paris an interesting communication on this subject In collaboration with Mlle Mendeleef he has been able to study the mechanism of heliotherapy by means of bacteriologic examinations of about twenty patients The fluid which oozes copiously from the wounds exposed to the sun furnishes a veritable hunting ground for microbes—a flooding of the tissues within and without A drop of this fluid examined under the microscope shows according to the duration of the insolation and according to the age of the wound either a fluid full of microbes in suspension or a fluid full of vivacious leukocytes all filled with microbes In comparing the smears made before during and after the insolation the phagocytosis comes out still more clearly These observations seem to establish the fact that the phagocytosis completes the action of the mechanical disinfection accomplished by the copious exudation referred to above The action of the sun on certain microbes appears, moreover more rapid than on others Leriche has seen the *Bacillus pyocyaneus* disappear definitely after one or two fifteen-minute sun baths He has seen the septic vibrio disappear almost completely after half an hour of exposure to the sun After six hours of insolation the *Vibrio proteus* disappeared from a wound resulting from a tardy secondary resection of the knee which presented an abundant fetid suppuration

In the most favorable cases (a fresh wound excision properly performed, the surface flat) sterilization was accomplished in forty eight hours After two sun treatments one of thirty minutes the other lasting two hours and a half, the wound became sterile and remained so under regular insolation for the following six days At this time the secondary suture was made and was successful In the least favorable case (a regular, anfractuous fresh wound, accompanied by fracture of the scapula and tibia) the sterilization was brought about in from four to six days and remained in that condition When the wound is older, more gravely infected, or of such a nature as to prevent the sun's rays from penetrating it readily, the sterilization is less rapid still From the standpoint of technic and indications for the procedure, Leriche emphasizes the two following points

1 If the sun is not too strong one may, without harm, expose the wounds to the sun a long time, but if the sun is strong and hot, one should not risk the long exposure. Heliotherapy must accordingly be applied in the form of short progressive treatments One should not exceed a quarter of an hour the first few days, otherwise one may induce very annoying local erythemas and even troublesome general reactions (increased temperature, headaches and prostration)

2 Heliotherapy is not a panacea which dispenses with proper surgical treatment On wounds not treated surgically it serves as a sure check. The same is true if the operation performed has proved inadequate The wound must be fully exposed, and the sun's rays must fall as nearly directly as possible Just as regards the mode of dressing, the conditions which surround a surgical operation are the deciding factor and the most important criterion with regard to the mode of treatment, for instance, in all places in which this exposure of the focus of the wound is not possible (the upper part of the thigh, a wound of the pelvis, etc.) it is preferable to resort to continuous irrigation, such as is accomplished by the Carrel method

Sencert has called attention to the fact that for a long time he has applied, without exception, pure asepsis, completed by heliotherapy, not only to the fresh wounds, but also to old suppurating wounds In regard to the latter, it is important at the start to establish the cause for the persistence of the suppuration (collection of pus, poor drainage, foreign body, bone splinters, necrosed osseous focus) When the cause of the suppuration has been established, it must be immediately removed, without loss of time in instituting a preliminary treatment of the wound by means of chemical disinfectants Only in case the operation is completed in the first onset can untoward conditions be avoided All loose remnants of tissue should be removed, the ramifications of the projectile should be followed up, and all anfractuosities should be suppressed, so as to display the wound completely One should search for and remove not only all foreign bodies and the free bone splinters, but also the adherent bone splinters The wound when cleansed, opened up and dried should be recovered with a purely aseptic dressing and daily exposed to the sun's rays If the wound in question was operated on prematurely while still inflamed, for two or three days any necrosed tissue which was not removed at the time of the operation is rapidly eliminated, and soon there appears a red and vivacious granulating tissue. The swelling and the pain disappear The surrounding teguments become normal again At the end of a week the wound is completely sterile The secretions have stopped entirely If it is a question of a wound operated on while suppurating freely, and particularly (for that is often the case) if it is a wound complicated by a comminuted fracture, accompanied by copious suppuration, after a few days the traumatic focus is pervaded by red granulations which rapidly fill all its deeper parts The temperature becomes normal, the patients no longer suffer, they recover their appetite, and their general condition improves rapidly This favorable outcome, as the result of this simple treatment, is absolutely constant If it should happen that the local and the general condition do not rapidly improve, or if a drainage of pus should persist, it may be concluded that the operation was not thorough, and that there is still in the wound a deep diverticulum, a foreign body, or a bone splinter, which is causing the infection Up to May 1, 1917, Sencert treated by this exclusively aseptic method 492 wounds of the head, 36 wounds of the thorax, 18 wounds of the abdomen or of the pelvis, 47 wounds of the large joints, 139 diaphysial fractures, and 207 wounds (mostly multiple) of the soft parts It is by virtue of this experience that Sencert thinks that he is justified in affirming the clinical excellence of the aseptic treatment for infected war wounds He has been able, moreover, to confirm these clinical observations by means of a bacteriologic test, which afforded him the opportunity of verifying the development of phagocytosis and the destruction of the microbes by merely bringing into play an organic defense. One may therefore affirm that a thorough surgical operation followed by postoperative aseptic treatment through exposure of the open wounds to the air and light effects their progressive and rapid disinfection without its being necessary to resort to any chemical agent

Also Quenu has been able to confirm good results from heliotherapy For more than a year he has been exposing to the sun for two or three hours such wounds after they have been opened up and all loose remnants of tissue removed, and he has been astonished by the oozing of the lymph, the vascularization of the wounds and their rapid evolution toward a sterile condition and a normal coloration Comparing these results with those produced by hot air jets at 60 or 70 C (140 or 158 F), he concludes that the caloric action in the two given cases is identical

Delbet insists that the main therapeutic action of the sun consists in a reinforcement of the means of defense of an organism, and that the rays of the sun do not act as do bactericides and antiseptics, in the ordinary sense of the word They act on the cells and on the humors He asserts that the microbes, which, before the treatment, are for the most part extracellular, are almost all phagocytes The formation of pus becomes much less abundant or ceases entirely

Likewise, Chaput asserts that he has obtained good results from heliotherapy in the treatment of war wounds, torpid wounds, and tuberculous and nontuberculous fistulas, but he thinks that in our part of the country, where cloudy days are frequent, it is preferable to expose the wounds to electric light, which permits of regular and prolonged treatments From his point of view, artificial light is much superior to heliotherapy for the treatment of local wounds On the other hand, heliotherapy is much more active in improving the general condition of the patients

LONDON LETTER

London, June 12, 1917

The War

THE ANTISEPTIC FLAVINE

The prevalence of sepsis in war wounds and the difficulty of coping with it by the methods in vogue in peace times has reopened the whole question of wound treatment and led to considerable research On the one hand, the advocates of antiseptics have endeavored to find new and more powerful agents, and on the other, Sir Almroth Wright and his school have proclaimed the uselessness of antiseptics and advocated "lymph lavage" promoted by the use of hypertonic saline solution The controversy is not yet settled The Medical Research Committee (whose work has frequently been referred to in previous letters) has had researches made for unrecognized antiseptics of high value since the first month of the war The committee has now issued a report on the results obtained Work at Haslar Naval Hospital and at the London Hospital showed early the value of malachite green, which is giving good results When it was desired to investigate flavine, which was a little known but patented German dye, none was available in this country, and its manufacture requires highly skilled work But the committee had a supply made at its biochemical department, and investigated at the Bland-Sutton Institute of the Middlesex Hospital by Dr Browning In a paper published in the *British Medical Journal,* January 20 (abstracted in The Journal, Feb 17, 1917, p 581), he announced that it had the remarkable property of destroying bacteria without destroying tissue, and in the presence of that serum its potency was increased Samples were sent to leading surgeons for the purpose of receiving reports for the guidance of the naval and military authorities The uses of flavine for particular purposes have still to be carefully defined in relation to other antiseptics and to operations Three firms are preparing to supply the public but under our patent law it will be necessary for them to procure a license to manufacture It is proposed that all firms shall use only one name for the substance, a condition which will restrain any firm from securing monopoly privileges by wide advertisement of a fancy name The committee proposes that the substance shall be officially called "Acriflavine" This will avoid the German name "Trypaflavin," which is registered as a trademark, and will prevent confusion with an existing vegetable dye already called "flavine" In an address to the court of governors of the Middlesex Hospital, Sir John Bland-Sutton states that he has obtained excellent results in septic cases from flavine It is diamino-methylacridium chlorid, which was originally prepared by Benda at the desire of Ehrlich from coal tar

THE SHORTAGE OF DENTISTS

The shortage of physicians is a new phenomenon created by the war almost entirely Some slight shortage, due to the increased demand for physicians caused by the insurance act, previously existed Prior to the passage of that act there were too many physicians, at least too many to make a comfortable living But the shortage of qualified dentists has always existed, and has only been aggravated by the war In an address to the Liverpool Odontological Society, the president, Mr John W Tomlinson, gave some remarkable figures In 1879 the number of names on the Dentists' Register was 5,289, in 1916 the number was 5,453 Thus in a period of thirty-seven years the increase was only 164 In the same period the population of the country increased from 34 to 46 millions, and the number of names on the Medical Register from 22 to 43 thousand No other profession in the country shows such stagnation At a recent meeting of the General Medical Council, the Dental Committee made a report on the shortage of dentists which was attributed mainly to the inadequacy of the dentists act This act prohibits unqualified practitioners from using the designation of dentists but does not in the least prevent them from practicing dentistry The result is that they far outnumber the qualified dentists They treat the working classes who are either unable or unwilling to pay the fees demanded by qualified dentists

THE SHORTAGE OF PHYSICIANS

The effect which the constant demand of physicians for the army is having on the supply of physicians is illustrated by the report of Dr Niven health officer of Manchester He has been unable to find a suitable applicant for the post of assistant medical officer at the Baguley Sanatorium though a salary of $2 000 a year is offered

A MOTOR LABORATORY FOR THE FRENCH RED CROSS

A motor bacteriologic laboratory for the French army has been provided by the London committee of the French Red Cross It is extremely compact but by means of extensions can be enlarged so as to form a room about 18 by 12 feet Electric light and all the latest bacteriologic appliances are provided Everything is so arranged that the whole can be packed up in a short time when required to go to another station The total cost is $7 500 A somewhat smaller laboratory has been constructed for presentation to the French Red Cross

Panel Practice

In spite of the greatest of all wars domestic questions such as the panel system continue to be discussed In Birmingham a joint committee appointed by the Panel Committee and the British Medical Association has just issued a report General satisfaction on the part of the insured is shown by the diminishing numbers seeking advice as private patients When dissatisfaction exists its causes are stated principally to be lack of sufficient examination The following extensions are considered necessary to make the insurance medical service adequate 1 A consulting or special opinion in necessary cases by a panel of consultants who would see the insured in their own homes or at the consultant s offices as required 2 Institutional treatment by panel physicians in consultation with a physician or surgeon and operations by the latter when necessary 3 Complete service of necessary laboratory work for diagnosis vaccines and serums and roentgenoscopy 4 Nursing of patients in their own homes by a system of district nurses 5 Dentistry including the provision of dentures 6 Convalescent homes 7 Instruction by lectures It is also suggested that 2 500 should be the largest number of names permitted on one physician s panel At present popular physicians often have panels exceeding 3 000 with a large private practice in addition In cases of chronic incapacity it is suggested that certificates by the physician every four weeks should be sufficient At present they are required every week and a fair proportion of the physician s office time is occupied in writing certificates

The Insurance Act

The insurance act is still on its trial and while no one doubts that it has come to stay no one doubts that it will be profoundly modified in the future Even the great preoccupation of the war has not prevented discussion of its merits and demerits The York medical panel committee has recently adopted an interim report of a subcommittee appointed to consider the working of the act as regards medical benefit which well summarizes the present position as to the advantages to the community and the panel physicians The gains to the latter are (1) an income known approximately in advance which probably but for the war would have enhanced the market value of practices, (2) ease in introducing substitutes in absence from illness or other cause, (3) freedom from dispensing and sending out accounts and (4) fixed rules for patients On the other hand the subcommittee is not sure that the defects of the act do not counterbalance its advantages Among the minor defects named are limitation of the free choice of physician, owing to the number of physicians who refuse to work the act, and the difficulty patients have in changing their physicians There are also the disadvantages inherent in any form of contract practice, which tend to make it less efficient than private practice The physician is irritated by the fact that any complaints against him are dealt with by a lay committee and also by limitation of the drugs to be prescribed on the grounds of expense Another defect arises from the multiplication of authorities dealing with health matters The gain to the community that would arise if the work of public health was brought into relation with the work of the physician is also emphasized One of the greatest defects is the gap that exists between the treatment of the insured under different circumstances for instance, when a patient in order to get certain forms of treatment has to be removed from the care of his panel physician to a hospital The act also breaks down in important directions through failure to provide treatment for much grave disease facilities for consultation nursing in serious cases specialist treatment anesthetics and pathologic service The establishment of a ministry of health to coordinate all the activities of the health authorities and hospitals staffed by or mainly by panel physicians are advocated

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Marriages

Surg John Samuel Boggess U S P H S San Diego Calif to Miss Henrietta Wadsworth of Minneapolis at San Diego June 19

Lieut Edward John Dale M O R C U S Army, New York to Miss Grace Aleward of Goshen, N Y, in New York June 13

Harry James Smith M D., Vacaville Calif, to Miss Frances Huffman of Petaluma, Calif at Oakland Calif, June 17

Stephen William Hayes M D to Miss Margaret Agnes Nolan both of New Bedford Mass at New York June 5

Isidore Charles Reshower M D New York to Miss Minna Nannette Strouser of Atlantic City N J June 24

Robert Lester Crum M D Hollywood Los Angeles, to Miss Louise Elizabeth Blondeau of Los Angeles May 19

William Herbert Mason Jr. M D., Murray Ky., to Ora Hannah Kress M D of Takoma Park Md, June 18

Lieut Charles Clifford Hawke, M C Kan N G, to Miss Rachel N Bowling of Winfield Kan., June 12

Daniel Davis M D Baltimore to Willa Mae Fricke, M D., of Rochester Minn at Wausau, Wis May 17

Charles William Yates M D Mount Oliver Pa, to Rose Elizabeth Stanley M D, of Oil City Pa, June 9

Edward L. Robbins M D Syracuse N Y., to Miss Margaret Theresa Coughlin of Albany N Y., June 16

Daniel Cleveland Patterson, M D, Bridgeport, Conn to Miss Marian P Gibney of New York, April 28

Clarence Proctor Thomas, M D, New York to Miss Irene Doolittle of Toronto Ont, in New York, June 9

Stephen W Hayes, M D, to Miss Margaret Nolan both of New Bedford Mass, in New York June 7

Frank Raymond Menne, M D to Miss Aletha Eleanor Messigner both of Portland, Ore, May 30

James Norval Stoops M D, Scottsbluff, Neb, to Miss Mary Edith Kriess of Kearney, Neb June 12

Eri Armitage Baber, M D Dayton, Ohio, to Mrs Irene Angela Miersch of New York, June 8

John W Clark M D Carterville, Mo, to Miss Jessie I Rowden, at Lakeside Mo, June 12

Lyman Foster Huffman M D Cleveland, to Miss Beatrice Swayze of Overland Ohio, June 16

Luther Courter Sampson, M D to Miss Helen Marguerite MacMahon, both of Buffalo, June 2

William Hilary Guy M D, to Miss Ethel Hansbury, both of Philadelphia, June 15

John B Frisbee, M D, to Miss Marie Gatzmeyer, both of Anaconda, Mont, May 19

Fred W Buckley M D., to Miss Louise Sabin, both of Beatrice, Neb May 23

Thomas Henry Lewis, M D, to Mrs Charles Mair, both of Chicago, June 16

James Hubert West, M D, to Miss Rena Richey, both of Cleveland, June 9

Allen Joseph Hruby, M D, to Miss Sylvia Petrtyl, both of Chicago, May 16

Deaths

Capt Paul Fitzsimmons, Medical Director, U S Navy (retired), Washington, D C, University of Georgia, Augusta, 1869, aged 78, a Fellow of the American Medical Association, a member of the Association of Military Surgeons of the United States, who entered the navy as assistant surgeon, Dec 19, 1871, and was retired, Feb 27, 1911, on attaining the age of 62 years, after fifteen years and four months of sea service and twenty years and four months of shore or other duty, surgeon of the *U S S Brooklyn,* during the Spanish-American War, and later fleet surgeon, in charge of the Naval Hospital, Newport, medical officer of the Washington Navy Yard, in command of the Medical Supply Depot, New York, and a member of the Naval Examining and Naval Medical Examining boards, Washington, died in the Washington Naval Hospital, June 11

Capt. Walter Audubon McClurg, Medical Director, U S Navy (retired), Washington, D C, Jefferson College, 1872, aged 65, a Fellow of the American Medical Association, and Association of Military Surgeons of the United States, who entered the navy, Feb 8, 1874, and was retired, Sept. 1, 1908, on his own application after more than thirty years' service, including fourteen years and eleven months of sea service, and eighteen years and three months of shore or other duty, on duty on the Bureau of Medicine and Surgery, Navy Department, Washington, D C, from 1889 to 1893, and fleet surgeon of the North Atlantic Fleet in 1902 and 1903, died in his apartment in Washington, June 16

Charles Henry Whitman, M D, Los Angeles, Bennett Medical College, Chicago, 1886, College of Physicians and Surgeons, Chicago, 1890, aged 62, a Fellow of the American Medical Association, and formerly president of the Los Angeles County Medical Society and Los Angeles County Surgical Society, professor of clinical surgery in the Medical Department of the University of Southern California, formerly a pharmacist, since 1909 superintendent of the Los Angeles County Hospital, died in that institution, June 14, from lobar pneumonia

Robert Goodloe Harper Hayes, M D, Bellefonte, Pa, Jefferson Medical College, 1884, aged 57, a Fellow of the American Medical Association, and a member of the Association of Military Surgeons of the U S, and for many years secretary of the Center County Medical Society, major and surgeon during the war with Spain, a member of the Bellefonte Board of Health, and founder of the Bellefonte Hospital, one of the most widely known practitioners of central Pennsylvania, died at his home, June 20, from intestinal disease

Augustus Alphonso Hussey, M D, Brooklyn, College of Physicians and Surgeons in the City of New York, 1896, aged 45, a Fellow of the American Medical Association, associate visiting obstetrician to the Brooklyn Hospital, and visiting obstetrician and gynecologist to the Brooklyn Hospital Dispensary, consulting obstetrician to the Norwegian Hospital, and visiting physician to the Bushwick Hospital, died suddenly while taking nitrous oxid gas and oxygen for the extraction of a tooth in Brooklyn, June 20

Herbert Maxon King, M D, Loomis, N Y, New York University, New York, 1887, aged 52, a member of the medical Society of the State of New York, a member of the American Association of Pathologists and Bacteriologists, American Climatologic Association, American Sanatorium Association and National Association for the Study and Prevention of Tuberculosis, a specialist in respiratory diseases, physician to the Loomis Sanatorium; died at Loomis, June 24

James C Rutledge, M D, Detroit, Detroit College of Medicine and Surgery, 1898, aged 46, formerly a Fellow of the American Medical Association, a member of the Michigan State Medical Society and Association of Military Surgeons of the United States, for three years an acting assistant surgeon in the United States Army, with service in the Philippine Islands, died in the Receiving Hospital, Detroit, June 1, from cerebral hemorrhage

William Halliday Fraser, M D, Los Angeles, McGill University, Montreal, 1867, aged 78, formerly a member of the Illinois State Medical Society, a practitioner of La Salle, Ill, from 1871 to 1913, supreme medical examiner and emeritus supreme medical examiner of the Order of Scottish Clans of the United States and Canada since 1897, surgeon to St. Mary's Hospital, La Salle, died in the Clara Barton Hospital, Los Angeles, June 11

Hugh Walter Blair, M D, Sheffield, Ala, Vanderbilt University, Nashville, Tenn., 1885, aged 55, formerly a Fellow of the American Medical Association, a member and once president of the Colbert County Medical Society, 1913, formerly mayor of Sheffield, died, June 12, from a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent, while despondent on account of family troubles

Peter Harry Steltz, M D., Washington, D C, University of Pennsylvania, Philadelphia, 1888, aged 48, a Fellow of the American Medical Association, chief surgeon of the Pennsylvania system and medical advisor of the Baltimore and Ohio system at Washington, for twenty years in charge of the hospital at the Washington Union Station, died at his home, June 5, from heart disease.

Franklin Timothy Burke, M D, New York, Long Island College Hospital, Brooklyn, 1898, aged 47, a member of the Medical Society of the State of New York, a specialist in diseases of the nose and throat, and chief of the staff of the laryngologic clinic of Cornell University Medical College, and assistant instructor in the department of laryngology, died at his home, June 8

Joseph A H Miller, M D, Princeton, Ky, University of Louisville, Ky, 1889, aged 57, a Fellow of the American Medical Association and a member of the American Association of Railway Surgeons, and Mississippi Valley Medical Association, health officer of Caldwell County, Ky, and district surgeon of the Illinois Central Railroad, died in Louisville, June 7

Barton Dwight Skinner, M D, Greenport, N Y, Bellevue Hospital Medical College, 1869, aged 63, a Fellow of the American Medical Association, for thirty-two years treasurer and once president of the Suffolk County Medical Society, visiting physician to the Eastern Long Island Hospital, Greenport, died in that institution, June 23, from disease of the intestines

David Joseph Cummings, Medora, Ind (license, Indiana, 1897), aged 71, formerly a Fellow of the American Medical Association, a member of the Indiana State Medical Association, for nearly half a century health officer of Jackson County, a veteran of the Civil War and a practitioner since 1869, died at his home, May 21, from cerebral hemorrhage

Richard S Hill, M D, Upper Marlboro, Md, University of Georgetown, Washington, D C, 1886, aged 53, special agent for the investigation of foreign and domestic markets for the sale of Maryland tobacco, director of the Maryland State Farmer's Institute, formerly a member of the legislature, died at his winter home in Washington, D C, June 12

Samuel R Robinson, M D, Sturgis, Mich, Columbus (Ohio) Medical College, 1878, aged 65, a member of the Michigan State Medical Society, and once vice president of the St Joseph County Medical Society, a specialist in diseases of the eye, ear, nose and throat, died in a hospital in Fort Wayne, June 13, after a surgical operation

Addison Cornelius Posey, M D, Hanford, Calif, Kentucky School of Medicine, Louisville, 1875, aged 68, formerly a Fellow of the American Medical Association, a member of the Medical Society of the State of California, a specialist in diseases of the eye, ear, nose and throat, was found dead in his home, May 31, from heart disease

Charles Edwin Lones, M D, Knoxville, Tenn, Lincoln Memorial University, Knoxville, 1896, aged 41, a member of the Tennessee State Medical Association, and once professor of anatomy in his alma mater, who was injured in an automobile accident near Maryville, Tenn, June 3, died in the Knoxville General Hospital, June 12

Adrien J Kirghis, M D, St Cloud, Minn, University of Vermont, Burlington, 1899, aged 41, a Fellow of the American Medical Association, who served in the military division of the armies of France for a year after the outbreak of the war and retired only on account of serious impairment of health, died at his home, May 31

Stewart Anderson Milliken, M D, Silver City, N M, New York University, New York, 1888, aged 56, formerly a Fellow of the American Medical College and a member of the Association of Military Surgeons of the United States, lieutenant-colonel, M C., New Mexico National Guard, died in Las Vegas, N M, April 21

David W Horning, M D, Minneapolis, Chicago Homeopathic Medical College, 1883, aged 65, a member of the Minnesota State Medical Association, lecturer on practice in the Homeopathic Medical College of the University of Minnesota, died at his home, about June 19, from heart disease

Holmes Mayhew Jernegan, M D, Boston New York Homeopathic Medical College 1869, aged 70 lecturer on surgical anatomy and clinical surgery in the Massachusetts Homeopathic Hospital from 1870 to 1873 for five years professor of surgery in the Boston University School of Medicine died at his home May 30

Edward Stephen Howard, M D, San Francisco Jefferson Medical College 1898, aged 48 formerly chief surgeon of the Municipal Emergency Hospital Service of San Francisco, professor of anatomy in the College of Physicians and Surgeons of San Francisco, died suddenly in his office June 12 from heart disease

Leo E Bennett, M D, Muskogee Okla University of Tennessee Nashville 1883 aged 59 founder of the *Indian Journal* and the *Muskogee Phoenix* Indian agent from 1889 1893 formerly United States marshal for eastern Oklahoma and for one term mayor of Muskogee, died in Mineral Wells Texas May 28

Charles Edward Scholl, M D, Logansport Ind University of Maryland Baltimore 1873 aged 74 formerly a member of the Indiana State Medical Association a Confederate veteran who was knocked down June 3 in an altercation regarding a tile drain died June 17 from concussion of the brain

George A Robertson, M D., Battle Creek Mich Cleveland University of Medicine and Surgery 1867 aged 76 formerly president of the state homeopathic medical society once a member of the board of aldermen and coroner of Calhoun County died at his home May 22

James Williamson Owen, New Bedford Mass (license Massachusetts 1894) aged 65 a practitioner since 1873 secretary of the British Medical Reform Association for twelve years and for three years an editor of its official journal died at his home June 4

Alexander McKee, M D., Glens Falls N Y, Maryland Medical College Baltimore 1899 aged 43, a member of the Medical Society of the State of New York milk and food inspector for Glens Falls died at the home of his sister in Hudson Falls N Y June 11

Nathaniel Clark Bacon Haviland, M D., Worcester Mass University of Vermont Burlington 1878 aged 62, formerly a Fellow of the American Medical Association a member of the Massachusetts Medical Society died at his home April 22, from cardiorenal disease

Harry Eldridge Williams, M D, Coatesville Pa, Homeopathic Medical College of Pennsylvania Philadelphia 1866 aged 77, for twenty-nine years secretary of the school board and school director a veteran of the Civil War died suddenly at his home June 9

Thomas J Nolan, M D, Snyder Neb John A Creighton Medical College Omaha 1903 aged 43 a member of the Nebraska State Medical Association died in St Joseph's Hospital, Omaha May 23 from peritonitis following an operation for cholecystitis

Albert R. Ayres, M D., Hannibal Mo St Louis College of Physicians and Surgeons 1870 aged 75 hospital steward and later captain and assistant surgeon of volunteers during the Civil War, for many years a druggist of Hannibal, died at his home May 29

Adolph Matthew Evetz, M D, Carroll Iowa St Louis University 1910 aged 33, a member of the Iowa State Medical Society formerly intern in St Anthony's Hospital Carroll, was crushed and instantly killed in an elevator in that institution June 15

Louis Sanford Sweitzer, M D., Akron, Ohio, Western Reserve University Cleveland 1875, aged 67, formerly a Fellow of the American Medical Association, a member of the Ohio State Medical Association, died in Los Angeles, June 21

Joshua M Eisenbise, M D., Quinter, Kan, University Medical College Kansas City Mo, 1900, aged 50, a member of the Kansas Medical Society, died suddenly in the Bethany Hospital, Kansas City, Kan, recently, after a surgical operation

William Bell Hunn, M D., Junction City, Ky, Kentucky School of Medicine, Louisville, 1893, aged 46, was instantly killed, May 19, when a revolver fell from the pocket of his coat and was discharged, the bullet striking him in the chest.

Edward James Cook, M D, Buffalo, Niagara University, Buffalo, 1895, aged 75, a member of the Medical Society of the State of New York, for twenty-six years a clergyman of the Methodist Episcopal Church, died at his home, June 7

Theodore H Wells, M D, Albuquerque, N M, Hospital College of Medicine Louisville, Ky 1878, aged 65, for many years physician of Bernalillo County and a druggist and postmaster of Old Albuquerque, died at his home, June 15

Nelson Horatio Lowry, M D, Woodhull, Ill, Hahnemann Medical College Chicago 1872 aged 70, for half a century a practitioner of Woodhull a veteran of the Civil War, died at his home May 22 from cerebral hemorrhage

George Andrew Matthews, M D, Anniston, Ala, University of Michigan Ann Arbor 1869, aged 67, formerly a member of the Medical Association of the State of Alabama, died at his home May 12 from carcinoma of the liver

Elmer Orren Miller, M D, Aberdeen S D, Starling Medical College Ohio 1895 aged 54, a Fellow of the American Medical Association died in St Luke's Hospital, Aberdeen June 16 from cerebral hemorrhage

Thomas I Sawyer, M D, Ulm Tenn University of Tennessee Nashville 1906, aged 34 a member of the Tennessee State Medical Association, died suddenly on a passenger train at Greenfield Tenn June 7

Volney F Tyree, M D, Bowling Green Ky, Vanderbilt University Nashville Tenn 1882, aged 59, formerly a member of the Kentucky State Medical Association, died at his home June 1 from heart disease

John Byron Robinson, M D., Brooklyn Md, University of Maryland Baltimore 1862, aged 81 for nearly half a century a practitioner of Anne Arundel County died, June 2, in Johns Hopkins Hospital Baltimore

Moses Alfred McDonald, M D, Whitesville Ky Louisville (Ky) Medical College 1883 aged 61 a Fellow of the American Medical Association, died at his home, May 18 from pulmonary tuberculosis

William Earl Marks M D., Reading Pa Hahnemann Medical College Philadelphia 1869, aged 71, for many years president of the board of health of Reading, died at his home, June 4 from cardiac asthma

Charles Francis Haugh, M D., Delphi Ind Medical College of Indiana Indianapolis, 1905, aged 35 who retired from practice after two years to go into business, died at his home, May 30 from heart disease

Patrick F Griffin, M D, Honesdale Pa, Jefferson Medical College 1886, aged 53, a Fellow of the American Medical Association died suddenly from heart disease May 27, while making a professional call

Lawrence Wilbur Campbell, M D., Ada Ohio Rush Medical College 1881 aged 60, a Fellow of the American Medical Association, formerly mayor of Ada, died at his home, June 11 from nephritis

Henry A Record, M D., Forestville, N Y, Hahnemann Medical College Philadelphia 1865, for forty years a practitioner of Chautauqua County, died at his home, April 22 from heart disease.

James H Rainwater, M D, New Canton, Ill, Missouri Medical College St Louis, 1889, aged 58, a Fellow of the American Medical Association, died at his home May 13, from pneumonia

Charles A Dunn, Cannelville Ohio (license Ohio, 1896), aged 62, for thirty-eight years a practitioner of Muskingum County, died in the Good Samaritan Hospital, Zanesville, Ohio April 21

Adelbert E Moody, M D, St Regis Falls N Y, Albany (N Y) Medical College, 1885, a Fellow of the American Medical Association, died in Cornwall, Ont., April 22, from typhoid fever

Mentor V Richard, M D, Pearl River, La, Tulane University New Orleans, 1882, aged 56, for many years coroner of New Orleans, died at his home, May 31, from acute gastritis

Jervis H Wattles, M D, Battle Creek, Mich, Western Reserve University, Cleveland, 1886, aged 76, for nearly half a century a practitioner of Battle Creek, died at his home, May 18.

Andrew J McLaughlin, M D, Aldrich, Mo, Marion-Sims Medical College, St. Louis, 1892, aged 63, formerly a member of Missouri State Medical Association, died at his home, May 17

Charles Benjamin Knowlton, M D, Buffalo, University of Buffalo, 1872, aged 82, for many years instructor in penmanship in the public schools of Buffalo, died at his home, May 11

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

CREOSOTE-DELSON AND CREOFOS

Report of the Council on Pharmacy and Chemistry

Creosote-Delson and Creofos, or Creosote with Hypophosphites, were submitted by the Delson Chemical Co., Inc., New York City. Creosote-Delson is said to be "beechwood creosote from which the irritating and caustic properties are removed by fractional distillation." It is claimed that Creofos contains "2 grains of Creosote-Delson and 3⅗ grains of the combined Hypophosphites in each fluidrachm of the mixture or emulsion, the lime salt predominating." It is also claimed that "the primary object of the hypophosphites in this preparation is that of maintaining the refined creosote in a pure, unoxidized state, and that no particular claim for therapeutic action on their part is advanced." It is explained further, however, "the addition of the lime was prompted by the belief that the fundamental cause of pulmonary tuberculosis is lime starvation."

The assertions are made that Creosote-Delson is superior to the official creosote because it can be taken "abundantly and persistently without harm to or interference with stomach and kidneys" and can be "taken uninterruptedly and indefinitely," while the dosage is "unlimited by any former knowledge of Creosote Therapy." Creosote-Delson is not on the market except in the combination Creofos, although it is supplied on request.

Creofos is advised in the treatment of tuberculosis, whooping cough, measles, "Grippe and Colds," bronchitis, asthma, "Intestinal Affections (Colitis, Summer Diarrhoea, etc.)," while its use is suggested for the "prevention of the spread of contagious diseases," and for "preventing contagion, in minor contagious diseases at any rate, in schools and families."

The following advertisement has recently appeared in the *New York Medical Journal* and in the *Therapeutic Gazette*:

> CREOFOS MEDICATION
>
> is the successful development of the most advanced practice in the treatment of infectious diseases. It destroys completely the causative organisms by a bactericide many times more powerful than phenol, yet absolutely harmless to animal life.
>
> Unlike serums, its activity is not confined to any specific disease, and its use insures against sequelae (as pneumonia following grippe).
>
> Especially valuable in the treatment of infants and patients of delicate constitution and in cases where time is of importance.

The Delson Chemical Co. was requested to supply information regarding the identity of Creosote-Delson and to support the claim that although it is "the whole drug" its dosage is "unlimited by any former knowledge of Creosote Therapy." The reply was virtually an admission that the toxic, caustic, phenolic components of creosote were present in Creosote-Delson just as in the official creosote.

The referee of the Committee on Therapeutics in submitting his report to the Council pointed out that it is difficult to discuss the pharmacologic merits of a semi-secret preparation, like Creosote-Delson, claimed to be more acceptable to the human organism than the official product it is intended to supplant, when the action of the parent drug is still questioned or disputed by eminent clinicians.

Absorption experiments have been carried out with creosote and creosote compounds such as creosote with hypophosphites or calcium or creosote carbonate chiefly by a study of the elimination products in the urine. But any evidence so far offered that these combinations increase absorption and lessen the irritating, caustic or toxic properties has been wholly inconclusive. The evidence offered by the Delson Chemical Co. presented no control experiments with the official creosote and did not prove that either Creosote-Delson or Creofos was less toxic than a corresponding amount of ordinary beechwood creosote.

The referee concluded that no proof had been offered that these preparations are materially superior to ordinary creosote preparations from the pharmacologic or therapeutic standpoint, and that the claims made for Creosote-Delson and Creofos are unwarranted in the light of our knowledge of the properties of creosote. The advertisement quoted above is an example of unproved and unwarranted claims.

On the recommendation of the referee the Council declared Creosote-Delson and Creofos inadmissible to New and Nonofficial Remedies for conflict with the rules as follows:

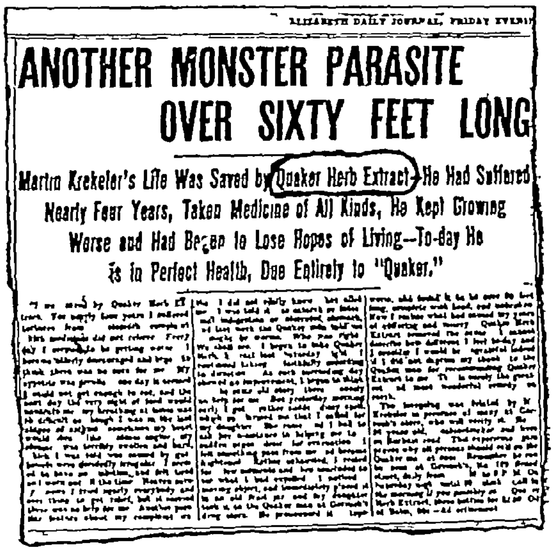
Creosote-Delson. The information so far available is not sufficient to define the nature, or composition, of Creosote-Delson, or to indicate in how far this product differs, if at all, from the official creosote (conflict with Rule 1). No methods are furnished for determining the identity or composition of Creosote-Delson (conflict with Rule 2). The available information does not show that Creosote-Delson has advantages over creosote (conflict with Rule 6).

Creofos. The composition of Creosote-Delson not having been furnished, the statement concerning the composition of Creofos is also unsatisfactory (conflict with Rule 1). The therapeutic claims are unsubstantiated and grossly exaggerated (conflict with Rule 6). The name is not descriptive of its composition as is required for pharmaceutical mixtures (conflict with Rule 8). There is no evidence that hypophosphites prevent decomposition of creosote (if this occurs). Hence the inclusion of hypophosphites must be considered irrational (conflict with Rule 10).

The Council's report was sent to the Delson Chemical Co. for consideration. The firm's reply contained nothing to warrant a revision of the report and the Council voted that Creosote-Delson and Creofos were inadmissible to New and Nonofficial Remedies and authorized the publication of this report.

SOME MISBRANDED NOSTRUMS*

"Quaker Herb Extract," "Payne's New Discovery," "Payne Quick Relief" and "Quaker Oil of Balm."—These four products were sold by the Quaker Herb Co., Cincinnati, Ohio.



ELIZABETH DAILY JOURNAL, FRIDAY EVENI

ANOTHER MONSTER PARASITE OVER SIXTY FEET LONG

Martin Krekeler's Life Was Saved by Quaker Herb Extract—He Had Suffered Nearly Four Years, Taken Medicine of All Kinds, He Kept Growing Worse and Had Began to Lose Hopes of Living—To-day He is in Perfect Health, Due Entirely to "Quaker."

The "Quaker Herb Extract," according to the federal chemists, was essentially a water-alcohol extract of an emodin-bearing cathartic drug. The alcohol strength was 18 per cent. It was sold as a cure for catarrh and grip, a preventive of rheumatism, kidney and bladder troubles and scrofula, malaria and various other conditions. These claims were declared false and fraudulent. "Payne's New Discovery" contained over 18 per cent. alcohol and, according to the federal chemists was a water-alcohol solution containing small amounts of baking soda licorice and extractive matter from a laxative plant drug While the label declared the stuff was not a cure all it was said to be a germ eradicator and a cure for catarrh and rheumatism, a remedy for all nervous disorders, a cure for gout and sciatica a specific for malaria a remedy for grip and falling of the womb and a number of other conditions These claims were naturally declared false and fraudulent Payne Quick Relief was chiefly turpentine with cayenne pepper, resin, camphor and chloroform present It was claimed to be a cure for cholera infantum and an effective relief for pleurisy dysentery cholera morbus and deafness The claims were declared false and fraudulent Quaker Oil of Balm seems to have been from the federal chemists' report virtually the same as the Quick Relief" viz., turpentine cayenne pepper, chloroform etc The claims made for it which were very similar to those made for the Quick Relief " were declared false and fraudulent The company would neither affirm nor deny its guilt but entered a plea of *nolo contendere* and was fined $100 and costs—[*Notice of Judgment No 4474*]

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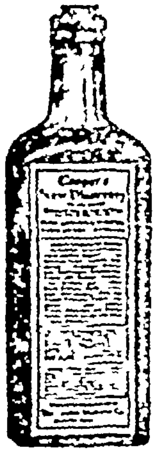
* This material, with much additional, appears in the new edition of the pamphlet "Convictions," price fifteen cents.

"Cooper's New Discovery" and "Cooper's Quick Relief"—The Cooper Medicine Company Dayton Ohio, sold these two products both of which were declared misbranded under the Food and Drugs Act The New Discovery was a nostrum of the alcoholic tonic type Federal chemists reported that it contained 20 per cent alcohol some emodin aloes and a small quantity of oil of sassafras together with reducing sugars The claim that it was an effective treatment for diseases of the kidneys scrofula so-called blood diseases gout diabetes and many other conditions was declared recklessly and wantonly false and fraudulent The Quick Relief was a liniment consisting of cayenne pepper in alcohol (31 per cent) flavored with oil of sassafras The claim that it would afford instant relief to sprains and pain and was a remedy for croup and effective for preventing injuries due to burns and scalds from becoming inflamed was declared false and fraudulent The company pleaded guilty and was fined $50 and costs—[*Notice of Judgment No 4460*]



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Wilson's Preparation—Herman L Davis traded under the name 'General Agent for Wilsons Remedy, New York" and sold a product called 'Wilsons Preparation'' It was sold as an effective remedy for consumption asthma and all lung and throat maladies Government chemists reported that Wilson's Preparation was a powder consisting largely of starch acacia and sugar with potassium acetate calcium hypophosphite and quinin The therapeutic claims were, naturally, declared false and fraudulent and applied knowingly and in reckless and wanton disregard of their truth or falsity Davis pleaded guilty and was fined $25—[*Notice of Judgment No 4480*]

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[1] This same fraud used to be sold as 'The Wilson Consumption Cure and purported to be a wonderful prescription of the Rev Edward A Wilson Post office authorities put the Wilson Consumption Cure out of business by denying it the use of the mails The matter is dealt with in the pamphlet Consumption Cures (price 20 cents) published by the American Medical Association

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Visualization—A catfish depends 95 per cent. on its taste barbels, or feelers for knowledge an eagle on its eyes, a hound on its nose, a blind man chiefly on touch A soundly sense-organed man gathers knowledge through all his five senses but he gets a greater impress through his eyes—through visualization—than through all the other four senses Although the teaching of disease prevention and accident injury is the most important in life s curriculum, yet they are the most difficult to visualize because their demonstration is in the form of a negative—E. A. Ayers, M D, *Public Health News* New Jersey

Correspondence

TUBERCULOSIS AND WAR

To the Editor —An article on this subject by Dr Maurice Fishberg (THE JOURNAL, June 16, 1917, p 1791) deserves serious consideration first on account of the tremendous importance of the subject and, secondly, because careful analysis of the article gives the reader a different impression from that gained at first glance I am inclined to believe that Dr Fishberg had no intention of conveying the ideas that have been gained by at least a considerable percentage of those who have read this article

My attention was first called to Dr Fishberg's paper through a letter from a prominent physician engaged in military medical work saying that Dr Fishberg's article had given him the impression that tuberculosis among soldiers need not be seriously considered

I searched the article for such a statement but radical as Dr Fishberg is in his opinions I could find no such utterance In his recapitulation however I found the unfortunate expression 'The problem of tuberculous infection of soldiers need not be considered seriously I am quite certain that Dr Fishberg did not anticipate the broad interpretation which might be given to this sentence It is quite clear from the context that he intended to convey the idea that tuberculosis *acquired through infection of healthy persons* engaged in military service need not occasion any great amount of apprehension or concern He did not mean, as I take it, that tuberculosis among soldiers is not a matter for most serious consideration In fact, he supports his contention with the assertion that in the vast majority of tuberculous cases discovered among the soldiers it was ascertained that they had been affected with the disease before enlistment" It is this lighting up of preexisting tuberculosis among the thousands who have been previously infected and not the new infection of healthy soldiers which is now occasioning concern

The impression that one gains from Dr Fishberg s entire article however, is that he is attempting to negate the generally accepted belief that tuberculosis constitutes one of the most serious problems of the present war

As I see it Dr Fishberg's contentions which he supports with extensive citations of current literature, are these

1 Certain tuberculous individuals do not break down under the strain of military service

2 Certain exceptional tuberculous individuals actually improve in physical condition during military service

3 Reactivation of former tuberculosis is no greater in military service than in civil life with similar physical demands

4 On account of the foregoing facts recruits should not be rejected on account of previous tuberculosis or previous sanatorium treatment unless showing evidences of acute tuberculous disease

5 New tuberculous infection of healthy individuals in the army is not sufficiently frequent to occasion serious concern

6 The incidence of tuberculosis in the civil population of France Germany Russia, England, Italy and other warring nations is no greater than in times of peace

His first and second contentions are not questioned by any one familiar with tuberculosis In private practice, we occasionally meet tuberculous persons, even those with bacilli in the sputum and showing other evidences of active disease, who are able to meet heavy physical demands, and occasionally we come on a patient who appears to improve on account of or in spite of great physical activity The vast majority of tuberculous persons however, break down under strain and so far as I know we cannot differentiate exceptional individuals from their fellows Dr Fishberg quotes Banks to the effect that of sixty-four tuberculous persons enlisted in the army and navy, nineteen engaged in active service for an unstated period of time without breaking down, although one of the nineteen had "broken down temporarily "

While it is interesting and surprising that as many as 30 per cent of these men could stand active military service it is more important that over 70 per cent of those who were apparently well enough to be accepted in the army broke down on account of their tuberculous condition

His third contention, while open to some question as to fact, is not sufficient to sustain his fourth contention That is, because reactivation of dormant tuberculosis is no more frequent in military service than in civil life, previous tuberculosis should not serve as a bar to enlistment

The reactivation of tuberculosis in civil life among those who have ever been sick with the disease is so great that no one would consider accepting a group of men formerly tuberculous for any important duty involving physical strain The policy of all nations has been to select, for military service, men who are physically most fit At the present time, in recruiting an army of 1,000,000 or a subsequent army of 2 000,000, there is not the slightest occasion for the United States to accept cripples of any kind We have at hand 10,000,000 men between the ages of 21 and 31 and 17,000,000 more over 18 and under 45, the ages which some of the warring nations now accept as the limits of liability to military service However the experience of civil life may compare with that of military service, every tuberculous person or previously tuberculous person enlisted is a weak link in the army, regardless of the apparent condition of the individual, and is a probable added financial burden to the nation

Dr Fishberg lays stress on certain quotations from Dr William Osler and on the fact that discharged sanatorium patients have been accepted in the German army England, with half our population, is maintaining an army of 5,000,000 men Our army, to be relatively as large as that of England, would have to contain 10,000,000 men If we should be compelled to draft an army of such proportions, and if fighting men became difficult to obtain, we can imagine even the most conservative of American physicians advocating the enlistment of those who give only moderate promise of being able to render any sort of military service We have not reached that place as yet, and I am under the impression that Dr Osler at the present time would not advocate the acceptance in the American army of a single individual who was formerly tuberculous

As to the acceptance of tuberculous persons in the German army, this is not convincing to many of us Germany seems determined to win the war at all costs Humane considerations have been ruthlessly swept away to attain this end The nature of the war is such that it has become necessary at times to deliberately sacrifice thousands of lives in a battle for the purpose of carrying out some strategic point Men who are able to serve in critical positions for a few days or hours may answer the purpose for such sacrifice, and thereby could save that many able bodied men to the empire

The voluminous quotations employed by Dr Fishberg do not controvert the fact that persons as physically unreliable as former tuberculous patients, as a class, are wholly unsuited for military service, and should not be accepted so long as able-bodied men may be obtained, and this in spite of the fact that certain rare tuberculous individuals survive the ordeals of war or that reactivation is no more likely in military service than in civil life

The fifth contention, that tuberculous infection of healthy recruits in military service is not sufficiently frequent to cause grave apprehension, will create no particular discussion The doctrines that primary infection usually occurs in childhood and that tuberculosis is less infectious among adults than previously believed are now quite generally accepted This contention does not materially affect the seriousness of the tuberculosis war problem.

The sixth contention of Dr Fishberg is purely a question of fact The statement that the incidence of tuberculosis in the civil population is no greater in France during the war than it was previous to the war seems to be supported to Dr Fishberg's satisfaction On the other hand, Dr Hermann Biggs, who has studied the situation at first hand, gives very convincing testimony exactly to the contrary As to this point, it is perhaps fairest to say that for the time being we can merely accept a Scotch verdict

My chief object in discussing this paper of Dr Fishberg's is to impress the hasty or careless reader that only to a very limited extent does the author successfully take issue with the fact that tuberculosis is one of the most important problems in the present war

George Thomas Palmer, M D, Springfield, Ill

THE BACTERIOLOGY OF FOODS

To the Editor —Referring to Prof Edwin O Jordan's article on this subject (The Journal, April 14, 1917, p 1080), we wish to take issue with him in relation to the bacteriological examination of milk Health departments and milk inspectors in their endeavor to ensure a pure milk supply to the public have received great aid from bacterial counts The more efficient and intelligent dairymen also appreciate the value of such tests, and milk supplies of many cities have been improved and infant mortality lessened through the active cooperation of civic officials and producers in the employment of bacteriological methods and their practical application

The arguments advanced by Professor Jordan are the arguments of the inefficient dairymen and their apologists, refined, it is true, marshaled by a keen mind, but still the same old plea against enforcement of fair and reasonable bacterial regulations for the production and handling of this important food product This is so much a fact that, whenever in courts of law, action is brought against careless producers or handlers of milk, the defense quotes articles similar to this one by Professor Jordan, and the tendency of such articles is to nullify the good work which has been done

We do Professor Jordan the justice to believe that in his pursuit of an idea he overlooked this practical and unhappy application We believe the following statement made by him to be entirely unwarranted by any proof adduced in his article

> Large numbers of milk bacteria, irrespective of kind, in themselves and without reference to their sanitary implications, have never been shown to be definitely injurious

This flat and unsupported dictum is so at variance with the opinions of many others that we, as officials engaged in enforcing bacterial limit regulations, feel that attention should be called to its tendency to create a false impression, and we desire also to present briefly what we believe to represent the actual conditions, which are admirably set forth in the following abstract from the "Third Report of the Commission on Milk Standards" (*Public Health Reports*, Feb 16, 1917)

> Relation of Large Numbers of Bacteria to Infant Mortality —The Commission believes that the numbers of bacteria in milk have a relation to the infant mortality, for the following reasons
>
> (*a*) Evidence furnished by clinical observations of groups of children fed on milk containing small numbers of bacteria and large numbers of bacteria shows a higher death rate in the latter than in the former
>
> (*b*) In general, a reduction in infant mortality in cities results from a substitution of milk containing small numbers of bacteria for milk containing large numbers of bacteria
>
> (*c*) Bacteria causing no specific intestinal infections in adults may cause infant diarrhea, and milk containing large numbers of bacteria more often contains species capable of setting up intestinal inflammation in infants than milk containing small numbers of bacteria

In the membership list of the New York Milk Committee appear the names of eight public health officers, seven bacteriologists, three chemists, and two agricultural experts Thirteen of the number have been educated as physicians, two of the members have had long practical experience in the milk industry, six have been connected with the production and control of certified milk.

So far as we are aware, the only practical research of this kind was that of Drs William H Park and L. Emmett Holt, of which account was given in their article, "Report upon the Results with Different Kinds of Pure and Impure Milk in Infant Feeding in Tenement Houses and Institutions of New York City A Clinical and Bacteriological Study" (*Archives of Pediatrics*, December, 1903)

Quotations from this article appear in the fourth edition of Professor Jordan's "Text-Book of General Bacteriology," page 540, as follows

> Park and Holt, as the result of a comprehensive study of the relation between milk supply and infantile diarrhea in New York City,

reached the conclusion that 'no special varieties of bacteria were found in ordinary milk which seemed to have any special importance in relation to the summer diarrhea of children While it is therefore perhaps premature to assign a uniform bacterial cause for every case of infantile diarrhea or to attempt to differentiate between different causes there can be no doubt as to the influence of the numbers of bacteria in milk The most careful investigations on this point are those of Park and Holt These observers found that during hot weather the effect of bacterial contamination on the health of infants was very marked when milk was fed without previous heating When milk is taken raw the fewer the bacteria present the better the results Of the usual varieties over 1 000 000 bacteria per cubic centimeter are certainly deleterious to the average infant

Writing to one of us ten years after the publication of this article Dr Holt says

> I still believe even more strongly than when the article to which you referred was published that of the usual varieties of bacteria found in milk over one million per c c are deleterious to the average infant'

Again after a table showing the difference in bacterial content of milk carefully collected and cared for as compared with ordinary milk Jordan ("Text Book of General Bacteriology" p 535) says

> Many such figures might be cited but they all lead to the same conclusion namely that the number of bacteria in milk depends chiefly— (1) upon the degree of original contamination of the milk (2) upon the age of the milk and (3) upon the temperature at which it has been kept In other words the bacterial count gives valuable information both as to the cleanliness and freshness of this invaluable food

With this statement of Professor Jordan's we are in complete accord and on such a basis bacteriologists of various cities have worked and have brought about marked improvement in milk supplies

Francis H Slack M D Boston
Deputy Health Commissioner Former Chairman Committee on Bacterial Milk Analysis American Public Health Association

George E Bolling Brockton Mass
City Bacteriologist, Chairman of Committee on Methods of Bacterial Analyses of Milk and Milk Products and the Interpretation of Results International Association of Dairy and Milk Inspectors

This letter was referred to Professor Jordan who replies

To the Editor —It is difficult even with careful phrasing to avoid expressions that when taken from their context may be liable to misinterpretation I had supposed that the statement to which exception is taken was sufficiently guarded to prevent all misunderstanding Certainly the general tenor of my address is in no wise antagonistic to the proper use of bacterial counts in controlling public milk supplies My own position in this matter is generally known as is shown indeed by the quotation from my book cited in the foregoing letter Let me state once more specifically and emphatically that I believe that bacterial milk counts are a valuable aid in controlling the quality of milk supplies and that their application by municipal authorities has helped to bring about a great improvement in the public milk supplies of American cities

A certain discrimination on the part of readers as well as writers seems desirable If attention is drawn to the fact that sometimes some observers have placed undue weight on colony counts in judging the sanitary quality of a milk this ought not to be taken as the personal opinion of the writer that colony counts should have no weight.

With regard to the particular sentence to which objection is made it is not quite clear why I should be asked to give proof of what seems to me a lack of evidence or what the nature of such 'proof" would be Keeping in mind the qualifications as I have stated them, the sentence even isolated from the text has ample warrant in the present state of our knowledge. I do not know of any evidence that shows that milk containing 1 000 000 *B subtilis* is any more or any less injurious than milk containing 1,000,000 *B coli* or 1,000,000 lactic acid bacilli or 1,000 000 streptococci or a mixture of all four For this reason I was careful to use the phrase "irrespective of kind" Let me not be misunderstood In thus pointing out the lack of evidence for distinction I am not expressing an opinion that there is no distinction Many investigators have commented on this lack of evidence One opinion by a competent authority which is at hand may be cited "The hypothesis that the ordinary saprophytic germs of milk produce disease and death in infants is singularly lacking in experimental confirmation" (Schereschewsky, J W 'Heat and Infant Mortality," Transactions of the Fourth Annual Meeting American Association for Study and Prevention of Infant Mortality, 1913 p 113)

In the body of my article on the *'Bacteriology of Foods'* I have shown that in practice bacterial milk counts are today interpreted differently according to conditions, in large and small cities in raw and pasteurized milk etc In other words the validity of the very statement objected to by my critics is recognized in some places in official regulations The important work of Park and Holt cited above constitutes in no sense a contradiction of my position Their observations on the connection of high numbers of bacteria with the health of infants relate to the bacteria of ordinary raw market milk For obvious reasons no distinction was made in this study between the bacteria themselves and the bacterial products that had accumulated in the milk It was plainly quite impossible to differentiate between the kinds of bacteria present in each feeding The fact that a correlation between numbers and effect existed in their series of observations is no proof at all that the effect was due solely to the numbers

One further question may be asked Are we justified in concluding that large numbers of bacteria in ordinary unheated market milk and in pasteurized or certified milk that has been kept for some days at a low temperature possess exactly the same sanitary significance? What I have called the 'sanitary implications' are certainly different in these three cases A sanitarian might be pardoned for preferring a properly pasteurized milk that had *been kept in his own* clean ice box for several days to ordinary raw market milk even if the latter had fewer bacteria Have we as a matter of fact any evidence that numbers irrespective of kind in themselves and without reference to their sanitary implications are definitely injurious? If so what and where is it?

I may say finally that the argument that we should refrain from discussing vexed questions before scientific societies and in scientific journals because of the possible effect such discussions may have on public opinion has never appealed to me Educated opinion in the long run is more likely to be influenced in an undesirable way by the attempt to conceal the deficiencies and shortcomings of our scientific knowledge It is certainly unfortunate that the lack of convincing evidence can be used as an argument to bolster up a bad cause it would be much more unfortunate if scientific men generally asserted that there was evidence when there was none and maintained that a working hypothesis was the same as a demonstrated fact

Edwin O Jordan, Ph D., Professor of Bacteriology,
University of Chicago, Chicago

FOOD REQUIREMENTS OF CHILDREN

To the Editor —In The Journal, June 9, 1917, the first editorial is relative to 'Food Requirements of Healthy Children' You seem to agree with Dr Lucy Gillett in her figures as to their needs You make no reference to your editorial of Sept 9 1916 p 814 In this Dr Du Bois of Russell Sage Foundation, seems to find a far larger amount needed for healthy athletic boys from 13 to 16 years of age than Dr Gillett mentions for the same ages It occurred to me that some of your readers would more likely have a more correct view if you would endeavor to correlate the two articles

Joseph J Macgowan, M D, Heth, Ark

[Comment—In our earlier editorial we quoted the finding of Du Bois that the basal requirement of boys in metabolism is 25 per cent above that of the adult We also cited the statistics of Gephart indicating that the total fuel intake of a group of 300 boys from 13 to 16 years of age in a large boarding school was three times that of the basal level of from 1,700 to 1 800 calories These figures were based on statistics computed on the basis of the meals served The upshot of the evidence was that growing athletic boys are apparently not content with the conventional 3,000 calories per day Gillett's estimates were based on a larger variety of statistics obtained in different ways The sources of reliable information for the food needs of children at the ages considered are admittedly scanty Being considered from the standpoint of the needs of the average child among the less well-to-do classes, Gillett's compilations doubtless represent lower limits rather than maximum or even optimum data Even so, a diet yielding up to 3,300 calories per day for 16 year old boys is suggested Our correspondent does well to call attention to these discrepancies because they illustrate how much more ought to be known about the food requirements of children at all ages so that blunders will not be made in the requisitioning of supplies for them when emergencies arise.—Ed]

VENARSEN

To the Editor —The following is a copy of a letter sent to the Intravenous Products Company, which needs no explanation

June 8, 1917

The Intravenous Products Co , Denver, Colo

Gentlemen —In reply to your circular letter under date of June 3, may I say that after using a great quantity of Venarsen both in clinical and private cases, I can see no more effect upon these cases than if so much water had been administered

This is also the report of Don R Black, pathologist for Bell Memorial Hospital, University of Kansas. In our experiments all bloods were tested before and after each administration of this product

William A Wilson, M D, Kansas City, Mo

AMBULANCE DRIVING NOT "AN OLD MAN'S JOB"

To the Editor —The Chicago *Tribune* editor who says that driving an ambulance on European battlefields is "an old man's job" presumably intends to leave *his* job in the hands of an older and wiser man while he goes to the front to demonstrate his heroism behind earth works, forgetting that ambulance drivers have to work in the open

He says

"Driving an ambulance is an old man's job It requires little strength, no great endurance, and the danger is small No young man, fit for military duty, can afford at this time to join the ambulance corps He owes it to his country to get into the fighting ranks, but he also owes it to himself to avoid the appearance of being a slacker The ignominy of staying behind with nurses while his companions are fighting in the trenches will be great, and it ought to be great We realize that many young men have previously joined the service in good faith, but the time has come when such enlistments will be regarded as an alibi to escape military duty There are plenty of men past military age who are capable of driving the ambulances"

He forgets that the men he insultingly calls "slackers" have been risking and losing their lives in one of the most important branches of the country's service while he has been getting ready to do something

Having the facts, can't you enlighten him in regard to the records of the service which he so tactlessly and unjustly disparages?

S W Williams, Chicago

PRESERVING RUBBER GOODS

To the Editor —Some years ago, English surgeons in India found that if rubber goods were kept in a closed receptacle containing a small quantity of oil they were kept soft and pliable A suitable receptacle can be made by taking a tin bread box with a close fitting lid A tinsmith can fit into it one or two perforated trays, the lower one sufficiently high to prevent oil from touching it In India a 5 gallon oil tin answers for the bread box In the bottom of the box a few spoonfuls of kerosene oil, just enough to cover the bottom, are placed, and then the trays for the rubber are put in The box should be marked, "Do not shake" I have used the oil method, and know that rubber apparatus so cared for has a period of usefulness much longer than usual

Annie Young, M D, Philadelphia

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama Montgomery, July 9 Chairman, Dr S W Welch, Montgomery

Connecticut Regular New Haven, July 10-11 Sec , Dr Charles A Tuttle, 196 York St , New Haven

Connecticut Eclectic New Haven, July 10 Chairman, Dr John W Fyfe, Saugatuck

Connecticut Homeopathic New Haven, July 10 Sec., Dr Edwin C M Hall, 82 Grand Ave , New Haven

District of Columbia Washington, July 10 Sec , Dr Edgar P Copeland, The Rockingham, Washington

Indiana Indianapolis, July 10 12 Sec., Dr W T Gott, 84 State House, Indianapolis

Massachusetts Boston, July 10 12 Sec., Dr Walter P Bowers, Room 501, No 1 Beacon St , Boston

New Mexico Santa Fe, July 9 Sec., Dr R K. McClanahan, U S Naval Hospital, Las Animas, Colorado

Oklahoma Oklahoma City, July 10 11 Sec , Dr R V Smith, Tulsa

Pennsylvania Philadelphia and Pittsburgh, July 10-12 Sec., Mr Nathan C Schaeffer, State Capitol, Harrisburg

South Dakota Deadwood, July 10 Sec , Dr Park B Jenkins, Waubay

Vermont Burlington, July 10-12 Sec., Dr W Scott Nay, Underhill.

West Virginia Charleston, July 10 Sec., Dr S L Jepson, Capitol Bldg , Charleston

Higher Requirements in New York

An official report states that the New York Board of Regents, after Jan 1, 1918, will require for admission to medical schools, in addition to a four-year high school education, two years of collegiate work (sixty semester hours), which shall include courses in physics, chemistry, biology, English, and a modern foreign language (French, German, Italian or Spanish) This is the twenty-third state to adopt this higher requirement. The complete list of states and the dates when the requirement became or becomes effective is as follows

State Examining Board of	Number of Years Required	Affects Students Matriculating	Affects All Graduates
Alabama	2	1915 16	1919
Alaska	2	1918 19	1922
Arizona	2	1918 19	1922
Colorado	2	1910-11	1914
Indiana	2	1911 12	1915
Iowa	2	1911 12	1915
Kansas	2	1918 19	1922
Louisiana	2	1918 19	1922
Maryland	2	1918 19	1922
Minnesota	2	1908 09	1912
Montana	2	1918 19	1922
New Hampshire	2	1915 16	1919
New Jersey	2	1917 18	1921
New Mexico	2	1918 19	1922
New York	2	1918 19	1922
North Dakota	2	1908 09	1912
Oklahoma	2	1917 18	1921
Rhode Island	2	1918 19	1922
South Carolina	2	1918 19	1922
South Dakota	2	1911 12	1915
Virginia	2	1917 18	1921
Washington	2	1918 19	1922
Wisconsin	2	1915 16	1919

Missouri March Examination

Dr George H Jones, secretary of the Missouri State Board of Health, reports the oral and written examination held at St Louis, March 26-28, 1917 The examination covered 14 subjects and included 100 questions The percentage required to pass was 75 Fifteen candidates were examined, of whom 14 passed and 1 failed Three candidates were licensed through reciprocity and 2 were granted reregistration licenses by examination The following colleges were represented

PASSED

College	Year Grad	Per Cent
Columbian University	(1900)	80 1
Loyola University	(1916)	75 5, 87 6
Rush Medical College	(1884)	82 7
College of Physicians and Surgeons, Iowa	(1898)	75
Kentucky School of Medicine	(1869)	75
American Medical College	(1908)	75
St Louis College of Physicians and Surgeons	(1910)	75 1

St Louis University	(1917)	81 8
Syracuse University	(1916)	75
Medico Chirurgical College of Philadelphia	(1915)	86 8
Meharry Medical College	(1911)	80 4
University of West Tennessee	(1915)	72 1
Baylor University	(1916)	79 6
FAILED		
University of West Tennessee	(1915)	59 1

College LICENSED THROUGH RECIPROCITY	Year Grad	Reciprocity with
University of Louisville	(1912)	Kentucky
University Medical College of Kansas City	(1913)	Kansas
Miami Medical College	(1905)	Kentucky

Book Notices

The Organism as a Whole from a Physicochemical Viewpoint By Jacques Loeb M D Ph D Sc D Member of the Rockefeller Institute for Medical Research Cloth Price $2 50 Pp 379 with 51 illustrations New York G P Putnam's Sons 1916

One of the things which has characterized the development of modern biologic science has been the adoption by the workers in this field of the methods of physics chemistry and physical chemistry used in the so called exact sciences A more recent and perfectly logical step has been the adoption of the physicist's mechanistic attitude of mind with regard to the interpretation of the results obtained from such studies not alone for a single physiologic process or the action of an individual organ but also for the behavior of the organism as a whole and indeed for the behavior of the species or of the whole animal kingdom including what is understood by the term adaptation Loeb sees the organism as primarily and fundamentally a physicochemical system which, subjected to various external stimuli, natural or experimental gives rise to modes of individual or racial behavior not essentially adaptive in their nature but definite and capable of calculation so far as the factors involved are known It is particularly fitting that Loeb, who has always stood in the fore in the use of exact methods in his many and various biologic researches should be the one to give expression to this point of view His method of treatment is experimental throughout. Mendelian heredity artificial parthenogenesis, the tropisms etc. each 'does its bit' in a logical and fascinating presentation The general scientific reader will find no better place in which to review or become acquainted with the present day problems and tendencies of general biology

The Breast Its Anomalies Its Diseases and Their Treatment By John B Deaver M D LL.D Sc D Professor of the Practice of Surgery University of Pennsylvania and Joseph McFarland M D Sc.D Professor of Pathology and Bacteriology in the Medical Department of the University of Pennsylvania Assisted by J Leon Herman B S M D Assistant Surgeon to the Methodist Hospital of Philadelphia Cloth Price $9 net Pp 724 with 285 illustrations Philadelphia P Blakiston's Son & Co 1917

This covers the field of breast diseases in great detail The evolution, involution and surgical anatomy of the normal breast are first given A feature of the chapters on congenital and acquired anomalies is that practically every condition enumerated is supplemented by photographs of one or more patients The article on infections deals especially with conditions which arise in the lactating breast More than half of the book is devoted to tumors Cysts are considered separately, and an attempt is made to simplify the pathologic classification which has become so complex in recent years Certain forms of true tumors are considered here Under nonindigenous tumors are grouped all of the different varieties arising from connective tissue and consequently not peculiar to the mammary gland The chapter on carcinoma is especially valuable because of the statistical study of a large series of cases and the consideration of the operative technic. An interesting chapter on the nonoperative treatment of cancer of the breast is contributed by Dr George E Pfahler, in which his extensive experience with the Roentgen ray is given The foreign literature has been especially well reviewed, and a literature index is inserted at the end of the article on each disease.

Social Medicine, Medical Economics and Miscellany

REEDUCATION AND REHABILITATION OF CRIPPLES MAIMED AND OTHERWISE DISABLED BY WAR

[The following is the statement of Dr S I Franz to the conference on the reeducation and rehabilitation of maimed crippled and otherwise disabled soldiers held under the auspices of the General Medical Board of the Advisory Commission of the Council of National Defense]

The importance of the work looking toward the rehabilitation of the maimed and crippled, using these two terms to cover the great number of different kinds of defects which have been produced is being appreciated more and more by the Belgian English and French governments and by the special physicians and others who have been compelled to deal with certain of the problems This is shown both by the number of institutions which have been established, and which are being planned and by the amount of space in the medical journals which is given to the consideration of the various factors involved More recently there have been numerous expressions of criticism that these matters were neglected at the beginning of the war and many hopes that more energetic measures would now be taken to deal with this class which had been neglected

As the result of previous wars and of accidents in industrial pursuits numerous crippled and maimed have been produced Except in relatively few cases these individuals have been permitted to bear their infirmities as well as they could and the burden of their support has fallen on their families or on the state if they became social parasites, beggars, and the like

In many cases these individuals have gravitated to the poorhouses or to special homes for the crippled, where they have been supported mostly in idleness Now, however it is being appreciated that great effort, and as concerted as is possible must be made to limit the parasitic conditions and to make these relatively incompetents as competent as possible For the general welfare of the nation as a whole for the comfort and the well-being of the individuals a *laissez-faire* method of dealing with them cannot and should not be tolerated No matter whether or not pensions will be provided for partial or for complete support, humanitarian and social interests demand that something more shall be done Efforts must be made to bring about a functional betterment, for the performance of those operations which will make the individual a useful and a productive member of society On the side of the individual efforts must be made to prevent the mental attitude of dependence and of woefulness, and this attitude or tendency to this attitude must be replaced by one of effort, of pride in accomplishment, and of self-help

Statistics are not available regarding the number of those who require special treatment of the nature of reeducation That the number is not a small one, and that in case the war continues for any length of time for our troops the number will not be small in these United States, are evidenced by the efforts which are being made in the countries which have been at war for nearly three years to bring about a medical and public appreciation of the conditions The several conferences of the allied nations at which the different aspects of the general problems (medical, educational scientific, social, etc) have been discussed have also shown the need of preparation for many more than are now taken care of

Borne has divided these individuals (and has grouped with them certain others) into three general classes

1 Those who, with immediate care can be made almost perfect (This group includes those who have been operated on, but who have been compelled to remain quiet and almost motionless, and who consequently have also suffered from muscular atrophies and ankyloses Here also come the tendon retractions, the defects which are due to adherent bind-

ing cicatrices, etc In some cases it may take as long as six months to get an individual of this class normal, or approaching his normal condition Many of these individuals have been incapacitated in the manners mentioned because of lack of appreciation of the possibilities of the production of such defects)

2 Those who are definitely educable, or who are readaptable to work of some kind, but who cannot return to their former occupations on account of the defects which have been produced (The class includes all those who have lost a part of the body, such as a hand, or foot, or arm, or leg, or even one or more fingers In these cases after surgical interventions, amputations and the like, it may take only three or four months to make the individual as nearly normal as he can be made This includes, of course, necessary orthopedic appliances)

3 Those who are so severely and extensively mutilated and infirm that nothing can be done for them (Relatively few of this class will exist Some of those now thought to be incapable of training will be found to be amendable to some kind of treatment, and this is one of the problems which will need to be considered Those who cannot be benefited by treatment of any kind, educational or otherwise, will probably have to be kept as permanent wards in special institutions or in homes for disabled soldiers)

It has been estimated by Amar that if proper and prompt treatment is available 80 per cent of the whole number are reeducable Some of those who are not counted in this classification will probably be dealt with in special institutions where they may also be educated This is true of the blind and the deaf Of the total which he considers educable, Amar also counts that at least three quarters may be unconditionally returned to some kind of gainful occupation and to useful social life, after they have been given the training which their conditions warrant The remaining quarter can be instructed in certain occupations, and can carry them out for such a period of time, that will enable them to be useful although their physical conditions may make them very slow in performance and may prevent their active competition with more normal individuals For this last class, therefore, special workshops may be required, special positions may need to be sought, and some may need special permanent care

Already in France and in England much work has been done with the maimed and crippled, as has been said, and the kinds of occupations which have been undertaken by these defectives are numerous Besides farming and horticulture, for which many have special aptitudes and previous special training and for which their infirmities are not prohibitive, the following occupations have been taught, or retaught, to certain individuals clerical work, stenography and typewriting (with the necessary instruction in writing, drawing, geography, arithmetic, commercial law, important languages besides the native language), carpentry, wood turning and carving, tailoring, brushmaking, basketmaking, shoemaking, book binding, trussmaking, making orthopedic appliances, locksmithing, making chains, making mats and rugs, making playthings, working in wood and in iron in making articles for ornaments, plastic arts

It will readily be seen, therefore, that a considerable number of occupations are open to those who have been maimed or crippled, and that many more will be found in our industrial establishments there is no doubt In the selection of an occupation there should be considered carefully the tastes and the previous aptitudes of the individuals, their past occupations, the degree of education, and great care must be exercised that caprice is not given away, so that an individual select such an occupation that it is inconsistent with his infirmity and that, if not entirely consistent, it is so time-consuming that the cost of reeducation is out of proportion to any expected gains that the individual may make subsequently In many cases also it is necessary to limit the kinds of occupations from which selection may be made, for certain occupations may tend to increase an existing infirmity such as a contracture or a laxity of an articulation which cannot be corrected

Rochard has criticized the conduct of the reeducation work in France, because of the lackadaisical methods which were used at the beginning The corrective apparatus was badly conceived, awkward and not effective for its purpose in many cases, and due regard was not paid to the individual It is important that each individual be considered as an individual, and that he be treated with that kind of mechanotherapeutic measure that will be best fitted to his particular needs, and at the same time that if any corrective apparatus is needed this should be considered in relation to the occupation that the individual is to undertake as a matter of rehabilitation and also in relation to the defect which is present.

Perhaps no better general outline of what is needed can be cited than that of a commission of the Royal Society of Medicine which has recommended as follows

1 A service of physical treatment, consisting of hydrotherapy, electrotherapy (including roentgenotherapy), mechanical treatment, medical gymnastics, and massage should be made available at the earliest possible date for all soldiers needing it who are disabled by war 2 Centers of physical treatment, comprising all the foregoing methods, should be established throughout the country on an adequate scale, and wherever possible in association with general hospitals, so that other forms of special treatment and diagnosis may be readily available 3 At such centers there should be a uniform system of measurements and records 4 Centers of reeducation and centers of physical treatment should be closely associated

In any consideration of the general matter of reeducation and rehabilitation one matter must be given due attention, viz, the placing of the men after the reeducation has been completed It would be a waste of time and effort if such individuals were reeducated and they were refused by the public to take advantage of their possibilities The organization of the work must deal with these matters, and perhaps with such other things as are being considered in France, like mutual societies, organizations, and cooperative endeavors for the general benefit of the members And propaganda for the popularization of the work of these men, for their utilization in a variety of ways, should not be too lightly considered

Dr Amar, one of the most noted of the French leaders in the movement for rehabilitation, has protested against the lack of preparation and the failure to provide suitable facilities for the proper prosecution of the work when the maimed first came in He has insisted on the necessity for full preparation and on the necessity for careful, scientific and thorough work In this regard he has said "The time has come for organizing the work of the wounded in such a manner that each one may take his true place in the social machine, and contribute according to his ability" And, in like vein, Regnier, after pointing out some of the difficulties of the work at the beginning has emphasized the need of a careful "scientific organization" if the work is to be conducted for the greatest benefit of the country, and of the individuals who have helped their country and who desire to be returned to that condition in which they may be of the greatest help to themselves and to their fellows

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Soldier's Heart

The British Medical Research Committee publishes a report by Dr Thomas Lewis of investigations made by him and his colleagues at Hampstead of the condition called soldier's heart, a term which the committee belives is not a good one, and for which Lewis has proposed the term "effort syndrome" It is said (*Lancet,* London, April 14, 1917) that there is no proof that the condition is primarily cardiac Lewis gives the leading symptoms in the order of their importance as breathlessness, precordial pain on exertion, exhaustion, giddiness and fainting Of less importance are palpitation, headache, lassitude, irritability of temper, insomnia, shakiness and flushing A disinclination to take alcohol, commonly for reasons of distaste, is regarded as a rather remarkable association Further classifying the characteristic signs, Lewis gives the following as ascertained on examination, increased heart rate with exaggerated response to emotion, exercise and posture, exaggerated systolic blood pressure, diffuse apex beat and irregularity, high pressure in patients up and about, fleeting disturbances of temperature and quickened respirations after exertion and often also in the resting state, coldness, blueness or wetness of the palms and soles, tremor of the hands, exaggeration of the deep reflexes, hyperacid urine with increased calcium output chiefly in the form of calcium oxalate crystals, and an increase in white corpuscles to 12,000 on the average, chiefly in the lymphocytes. The alteration in the blood is said to lie in the deficiency of those salts which, acting as buffers, ease the shock to the reaction caused by the addition of acids or alkalies. In their absence the acids evolved by muscular exercise tend to irritate the respiratory centers. There is a high incidence of the condition among men who were formerly in sedentary occupation. This indicates that the initial stages of the training of conscripts of this type should be more moderate. Keep them out of bed; use no drugs in treatment.

Climate and the Consumptive

The open air treatment of tuberculosis provides a powerful weapon against a dreaded disease. The enthusiasm which it awakened not unnaturally centered attention prominently for a long time on the outdoor life and made climate the pivotal point of consideration. Gradually other important helps in the fight for recovery are being emphasized so that the need for rest, suitable food and even appropriate medication is not overlooked at present. But the quest of climate remains the feature that is most debated with the expectation of a helpful solution. In *Public Health Reports*, 1917, **32,** 318, Asst. Surg.-Gen. T. W. Trask of the United States Public Health Service comments on this common idea that somewhere there must be a region with a climate specially suited to the tuberculous. He says:

> Climate relates to the condition of the air of a locality as regards temperature, humidity and prevailing winds, and for the purpose of the present discussion may be considered to be the same thing as atmosphere. It is really a suitable and favorable atmosphere the consumptive needs and seeks. The conditions to be sought in an atmosphere or climate are those which are most suitable to maintaining the natural well being of the body, conditions adapted to the well but of special importance to those who have a chronic affection, such as tuberculosis, to overcome. The things which make a climate good or bad are the temperature and humidity of the air, the frequency and velocity of winds, and the presence or absence of dust and smoke.

The best climate for one affected with pulmonary tuberculosis has been described as that which furnishes a favorable atmosphere for the greatest number of hours of the day and the greatest number of days of the year. To live in an ideal climate one would have to divide the year between different localities. Even this would fall short of the highest ideal if it meant failure to take into account the items of expense, the problems of food, exercise and work, the possibility of medical supervision and the question of family and friends. In the midst of such conflicting interests there is a refreshing helpfulness in the epitome prepared by Dr. Trask:

"A favorable climate for a consumptive is one that is not too warm. A moderately cool atmosphere is invigorating while a too warm one is depressing. Very cold weather on the other hand makes the living of an outdoor life more difficult and less attractive. Moderately cool atmospheric conditions are those to be sought. No locality has a climate that is favorable all the year, and most localities in the United State have favorable climates for a considerable portion of the year if one will only take advantage of them. In one's quest for a favorable climate one must not forfeit suitable food, rest and peace of mind, or gain a more favorable atmosphere in which to live at the price of homesickness and worry. The consumptive can usually obtain the most favorable conditions for recovery, including an outdoor life, suitable food, rest, medical attention and nursing, at or near his home. A suitable atmosphere or climate can be obtained during many hours of the day by avoiding overheated or crowded rooms and by sleeping on a porch in all ordinary weather and in a room with open windows when it is very cold or stormy. Leaving home, except to go to a sanatorium, is fraught with much danger unless one is financially able to meet all possible demands, and it should be most carefully considered even then."

Medicolegal

Validity of Contract to Attend Smallpox Patient

(Mayor and Council of City of Sugar Valley vs. Mills (Ga.), 91 S. E. R. 17)

The Supreme Court of Georgia, in reversing a judgment obtained by plaintiff Mills, a physician, for services rendered to a smallpox patient, says that the town of Sugar Valley was incorporated by an act of 1887 which provided that the corporate powers of the town should be vested in a mayor and five councilmen, and by the name of the mayor and council of the town of Sugar Valley they might sue and be sued and exercise all other corporate powers that might be necessary in performing their duties; that said mayor and councilmen should have power and authority to pass all laws and ordinances that they might deem necessary for the government of said town. There was no other general welfare clause or clause in regard to the right to make contracts in the charter. But these provisions of the charter of the town were supplemented by the general law as contained in Section 1646 of the civil code, which is as follows: "The ordinary of each county, or the corporate authorities of any town or city in this state within the limits of which the smallpox has appeared or may appear, are authorized and empowered to provide a suitable hospital for those so afflicted, and to furnish them with medical or any other attention that in their judgment those so afflicted may require." When considered together, the foregoing provisions of the law confer authority on the mayor and councilmen of the town of Sugar Valley to employ a physician for the purpose of treating smallpox patients within the incorporate limits. However, construing the plaintiff's petition most strongly against the pleader, it was not to be accepted as alleging that the mayor and council, acting in their corporate capacity, entered into a contract with him. The language should be construed as alleging that the mayor at one time informally employed the plaintiff, and that at another time the council informally employed him to treat the smallpox patient. It was erroneous to overrule the ground of demurrer to the petition that it was not alleged that the plaintiff made any contract with the mayor and council of the town of Sugar Valley in its corporate capacity. The charter of the town of Sugar Valley, supplemented by the general law (civil code, Section 1646), provides that the municipality may enter into contracts for medical services to smallpox patients, through the instrumentality of the mayor and councilmen of the town. This contemplates *formal* action by the mayor and councilmen when duly assembled. An agreement, entered into privately with the mayor and at another time with the councilmen will not suffice.

Practicing of Medicine by Bishop or Preacher in Violation of City Ordinance—Church Receiving Pay

(Fealy vs. City of Birmingham (Ala.), 73 So. R. 296)

The Court of Appeals of Alabama, denying a rehearing, affirms a conviction of defendant Fealy, whom the complaint charged with having treated or offered to treat one Keeling, a human being, of and for gallstones, organic heart trouble or other diseases of human beings without having first obtained a certificate of qualification from the state board of medical examiners, against the laws and ordinances of the city of Birmingham. The court says that it is of opinion that the complaint set forth an offense sufficiently pleaded. By a blanket, or omnibus, provision of Ordinance 181 of the city of Birmingham, all misdemeanors against the laws of the state are also made offenses against the city. The statute against practicing medicine without having obtained a certificate from the state board of medical examiners is to be found in Section 7564 of the code, which makes it a misdemeanor for any person, without such certificate, "to treat or offer to treat diseases of human beings by any system of treatment whatsoever" It has been frequently held that in charging a statutory offense, the offense is sufficiently pleaded if set forth in the language of its creation And the court is not impressed with the demurrers challenging the constitutionality of the ordinance, the regulation of the practice of medicine is a valid exercise of the police power Nor does the court think it was error to sustain demurrers to the defendant's pleas that in the treatment of said Keeling as alleged in the complaint he was practicing and putting in effect his religious faith and doctrine as set forth and promulgated by the Altrurian Church of which the defendant was a bishop, and a preacher, etc. The question to be determined was not whether the defendant practiced his religion in treating Keeling, but whether the defendant practiced medicine, within the meaning of the statute Assuming that one brings himself within the statute and practices medicine without a certificate of qualification, he is none the less guilty because in so doing he also practiced his religion The regulation of the practice of medicine is a police regulation for the protection of the public, it does not interfere with the exercise of religious liberty, it merely safeguards the lives and health of the public against the use and employment of dangerous agencies in the hands of the unlearned and unpracticed in the science and art of medicine Whether an act is or is not embraced within the statute as practicing medicine depends on the latitude of interpretation of the act The Alabama statute is extremely broad, its language is "Any person who treats or offers to treat disease of human beings by any system of treatment whatsoever" Under this statute, this court apprehends any agency of supposed therapeutic value set in motion with the design to cure prevent or alleviate human disease or suffering of body or mind by one who receives a quid pro quo (consideration) for such service would be comprehended within its terms, not necessarily that there should be an employment of drugs or surgical or mechanical appliances Physicians in some cases ascribe a therapeutic value or efficiency to the power of mental suggestion, would the physician in employing such agency, be any the less practicing his profession? The court thinks not In those cases however, in which no charge is made for the service, and recourse is had merely to prayer, without the employment of material or human agencies it cannot be said that the person invoking divine interposition in behalf of another is treating or offering to treat diseases of human beings by any system within the meaning of the statute, and cannot be said to be practicing medicine In the instant case, the defendant not only employed prayer and the laying on of hands, but, if Keeling's version be accepted, the defendant put his ear over Keeling's heart and examined him somewhat in the region of the kidneys and liver, and rubbed him about the affected parts It was immaterial that the sums paid to the defendant went to the church or society of which he was president and bishop, since, if the offense was committed by the defendant, the law would countenance or tolerate no evasion by his receiving compensation by indirection through the medium and device of a corporation

Against Compulsory Roentgenographic Examination

(Gregory vs Acme Road Machinery Co (N Y), 162 N Y Supp 571)

The Supreme Court of New York, Appellate Division, Fourth Department, affirms an order denying a motion made by the defendant for an order directing the plaintiff to submit to having a roentgenogram taken The court says that the question was whether the plaintiff might be compelled, under the provisions of Section 873 of the code of civil procedure, to submit to a roentgenographic examination in connection with the usual physical examination before trial, in an action for personal injuries The special term of the supreme court held that the court has no power to order the plaintiff to submit to the taking of a Roentgen-ray picture, and this court thinks that holding is correct If it were absolutely certain that the plaintiff would not be injured by the taking of the roentgenogram, the court thinks he might be compelled to submit to it in aid of the physical examination It was true that the expert, who it was proposed should take the roentgenogram, stated in his affidavit that with his apparatus there was no danger of burning, or of subjecting the plaintiff to any bodily injury But it is well known that persons have been burned and seriously injured in the taking of such roentgenograms, and the expert conceded that, when an operator is not experienced and has not extensive knowledge of roentgenography, a person may be burned by the ignorance of the operator and by too long exposure. This court is clearly of the opinion that the plaintiff cannot be required to take the hazard of such an examination This is not the taking of an ordinary photograph, which should do no harm to the subject A want of attention, care and skill on the part of the operator might result in serious injury to the plaintiff, and that hazard the plaintiff should not be required to take, even if the provisions of the section were adequate to compel him to do so A further discussion of the question seems unnecessary

Liability in Personal Injury Case for Mistake of Surgeon

(Galveston, H & S A Ry Co vs Miller (Texas), 191 S W R 374)

The Court of Civil Appeals of Texas, in affirming a judgment for $17,750 damages in favor of plaintiff Miller, for personal injuries, holds that there was no error in the trial court's refusing to instruct the jury that if it found the plaintiff's condition was impaired, rather than benefited by any operation performed on him, then the jury was instructed that he could not recover on account of such impaired condition as a result of such operation, if any, unless the jury found from a preponderance of the evidence that such operation appeared to the surgeon performing it to be necessary, and that it was more probable that such operation, when performed, would benefit the plaintiff rather than injure him Inverting the instruction, it would seem that it could be construed by the jury to have required it to find that the operation appeared necessary to the operating surgeon, and to have required the jury also to find as a fact that the operation would more probably benefit than injure the plaintiff before he could recover any damages for the impaired condition resulting from the operation, if the jury found that the condition was impaired by the operation The instruction was not a correct statement of the law All that could defeat the plaintiff's claim for damages for increased injury caused by the operation was his own negligence in the selection of a surgeon If not negligent in the selection of the surgeon, the defendant was liable for the mistake, if any, of the surgeon, and it was immaterial whether the operation appeared to the surgeon as necessary, or whether in fact the operation was more beneficial than hurtful

Sufficient Information and Proper County for Trial

(People vs Maczulski (Mich), 160 N W R 576)

The Supreme Court of Michigan, in affirming a conviction of the defendant of having unlawfully procured himself to be registered as a physician under the provisions of Act 237 of the Public Acts of 1899 as amended by Act 368 of the Public Acts of 1913 says that the information charged the offense in the language of the statute and was sufficient The supreme court also thinks that the court in the county in which the record showed that the defendant's application for a license was filed out and filed and the license was issued had jurisdiction to try the case, notwithstanding that he passed an examination in another county

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Society Proceedings

COMING MEETINGS

Montana Medical Association, Kalispell, July 11 12
Western Roentgen Society Kansas City, Mo, July 20-21

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below

American Journal of Medical Sciences, Philadelphia

June CLIII No 6

1 Some Neurologic Observations in One Hundred and Fifty Laminectomies for Spinal Disease and Injury C A Elsberg New York—p 781
2 Obsolete Miliary Tubercles of Spleen O Klotz Pittsburgh—p 786
3 Association of Gastric Symptoms in Nephritis with Retention of Nitrogenous Waste Products in Blood A L Chace New York—p 801
4 Studies in Physiology and Pathology of Stomach After Gastro-Enterostomy A O Wilensky and B B Crohn New York—p 808
5 Two Cases of Probable Syphilis of Intestines D A Haller and I C Walker Boston—p 824
6 Diverticulum of Duodenum Report of Case S Basch New York—p 833
7 Use of Raw Eggs in Practical Dietetics W C Bateman Missoula Mont—p 841
8 Treatment of Bronchial Asthma by Vaccination Report of Cases M H Sicard New York—p 856
9 Effect of Anesthesia and Operation on Kidney Function R Colp New York—p 868
10 Unusual Disorder of Cardiac Mechanism Relieved by Surgical Operation E B Krumbhaar Philadelphia—p 872
11 Lead Poisoning in Children with Especial Reference to Lead as Cause of Convulsions K D Blackfan Baltimore—p 877
12 Case of Primary Endothelioma of Pleura K A Kelly Philadelphia—p 888

1 See The Journal, June 10 1916 p 1852, also July 15 1916 p 168

2 **Obsolete Miliary Tubercles of Spleen**—In a series of 504 necropsies tuberculosis was encountered in 172 cases The spleen was involved sixty nine times and in forty of these miliary lesions were completely or almost completely healed by fibrosis The average age was 42 years and the youngest was 18 years Six of the cases showed a persistent tuberculosis in other organs In fifteen cases the liver also contained healed miliary tubercles In none of the cases had there been recognizable clinical manifestations of splenic involvement The spleen was not enlarged In twelve cases with healed miliary tubercles of the spleen no other tuberculous process was found The splenic infection was a hematogenous one arising most commonly from antecedent foci in the lungs or peribronchial glands Those cases in which no primary tuberculous focus was found probably had a similar mode of origin in which however the initial focus was of minor extent unrecognizable at the time of necropsy Klotz points out that the fibroses which are observed in anthracotic peribronchial glands are difficult of analysis as indicating a preceding infectious origin of the fibrosis The healed splenic tubercles are recognized only by careful search and complete gross sectioning of the tissues of the organ The presence of the healed miliary tubercles of the spleen indicates the frequency of a tuberculous bacteremia from which the tissues may entirely recover The different organs demonstrate a variable resistance to the tuberculous infection Reinfection may take place in the spleen

3 **Gastric Symptoms in Nephritis**—Gastric symptoms, Chace says are among the most common early symptoms of nephritis In cases with obscure gastric disturbances the chemical examination of the blood has been found very valuable. Several cases are reported in which the estimation of the blood creatinin not only showed that the patients were suffering from severe nephritis, but gave a fatal prognosis In some of the earlier cases the blood uric acid was of value as an early diagnostic sign.

7 **Use of Raw Eggs in Practical Dietetics**—Further experiments made by Bateman on man show that raw egg-white is a decidedly indigestible substance It may cause diarrhea and vomiting when ingested in any large quantity Its utilization by the body is poor, since it is used only to the extent of from 50 to 70 per cent

8 **Treatment of Asthma by Vaccination**—Whatever the variety of germ causing asthma whether *Streptococcus viridans* or *Streptococcus hemolyticus* Sicard is convinced that an autogenous vaccine made from the sputum will cure the attacks It is best given twice a week in constantly increasing strength, for twelve to twenty injections It is much better to give such dosage that local reaction occurs, although Sicard has had cures in patients who showed no local reaction On the other hand he has had cases which showed no improvement until doses were given in sufficient quantity to cause local reaction Sicard has adopted the practice of beginning with 100 000 000 in adults and feeling his way cautiously until finding the dose that caused local reaction and then provoking a local reaction on every injection If at any time the local reaction be too severe or if general symptoms occur in the form of fever chilliness general malaise or aches, or increase in the asthma, he allows a rest for a period before beginning again using his judgment as to continuing the same dosage or dropping back to a smaller one it is better to avoid going backward if possible One thousand million is often far enough to carry them although more obstinate cases may require 2 000 million and Sicard has carried them to 3 000 million and higher It is very striking to see the asthma clear up after the first injection as has happened in a number of cases The longest period cure Sicard reports is two years

9 **Effect of Anesthesia and Operation on Kidney**—On the whole says Colp the average case after thirty-six hours postoperative shows very little change in kidney function as demonstrated by the phenolsulphonephthalein test, although 25 per cent showed urinary changes which in ten days time were again negative The functional activity of the kidney is depressed as the length of anesthesia is increased, while in short anesthesias the kidney might even appear to be stimulated to a slight degree As age increases the threshold activity of the kidney is lessened Nervous patients anemic, obese and arteriosclerotic patients as a rule show some effect of their physical or psychic state on kidney function Preexisting conditions of albuminuria have a tendency to decreased phthalein excretion and those cases which have a decreased phthalein excretion in the majority of instances show effects of kidney depression as evidenced by careful urinary analysis, although these effects are only temporary For long anesthesias and apparently for nervous patients gas and oxygen as an anesthetic seems to have the least irritating effect on kidney function as demonstrated especially by urine examination

10 **Disorder of Cardiac Mechanism**—A case of cardiac arrhythmia by Krumbhaar is described in which a condition of ectopic beats arising in different parts of Tawara's node was simulated by a shortened conduction time (P-R interval) with recurring auricular extrasystoles (pulsus bigeminus) Both of these disorders of the cardiac mechanism were relieved by a pelvic operation (anterior and posterior colporrhaphy) at least to the extent that they disappeared during the period of observation

12 **Primary Endothelioma of Pleura**—Kelly's patient presented loss of weight weakness cough expectoration, headache vomiting gastro-intestinal symptoms chest signs of consolidation, Roentgen-ray shadow over the primary growth, metastases palpable lymph nodes palpable liver with nodules, fixation of the vocal cords negative sputum and Wassermann and secondary anemia The case terminated in a nephritis cardiac failure jacksonian convulsions and hemiplegia Pathologically there was one large primary mass arising from the pleura, composed of endothelial cells in various types and arrangements with extension to the lung, bronchial lymph nodes, trachea and bronchi and compression of the aorta Metastases followed to the liver, kidney, lymph nodes abdominal skin right radius and brain, with erosion of the spinal bony column and fracture of a rib

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13 Plea for More Frequent Use of Rational Functional Methods in Treatment of Fractures C H Bucholz, Boston—p 447
14 Orthopedic Findings in Group Study of Miscellaneous Affections G J McChesney San Francisco—p 459
15 Hereditary Deforming Chondrodysplasia Report of Cases A Ehrenfried Boston—p 463

16 Delayed Development in Tarsus, Report of Two Cases C L Lowman, Los Angeles, Calif —p 479
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American Journal of Roentgenology, New York

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22 Action of Roentgen Rays on Plate, Pastille and Skin J Remer and W D Witherbee, New York —p 303
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24 Method for Dental Stereoroentgenography H Letord and C G Lunan, El Paso, Texas —p 309

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27 *Prognosis of Pulmonary Tuberculosis in Infancy T C Hempelmann, St Louis —p 99
28 Case of Recurrent Pneumothorax M I Marshak and J W Craighead, Edgewater, Colo —p 109

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29 *Case of Intrathoracic Cyst with Calcification G J Heuer, Baltimore —p 129
30 Renal Function in Pulmonary Tuberculosis E H Funk, Philadelphia —p 145
31 What Massachusetts Is Doing to Prevent and Control Tuberculosis J B Hawes, II, Boston —p 157
32 Experimental Investigations of Tuberculous Peritonitis and Effect of Pneumoperitoneum R G Peschman and H J Corper, Chicago —p 165

27 **Pulmonary Tuberculosis in Infancy** —A study was made by Hempelmann of the fate of 130 infants under 2 years of age with pulmonary tuberculosis Sixty-four of these died and sixty-six were living at the time of the last note on the history Of these sixty-six, only thirty are known to have lived for a period of more than one year after the diagnosis was made Some of these, however, were observed for periods of four and five years In computing the mortality, only those babies were classed as "living" who were known to have lived at least one year after the diagnosis was made. This eliminated thirty-six babies and the mortality among the remaining ninety-four was as follows Under 1 year of age, the mortality was 78 7 per cent , from 1 to 2 years of age, the mortality was 57 4 per cent, and for the 2 years, the mortality was 68 per cent.

29 **Case of Intrathoracic Cyst** —The patient whose case is cited by Heuer was a man 53 years of age, who up to the day of onset of his illness had performed the heaviest labor and was unaware of the condition in his chest until a physical strain gave rise to pain, cough and shortness of breath He presented the physical signs of pleurisy with effusion In an attempt to confirm the diagnosis by thoracentesis, the exploratory needle met with resistance such as might be offered by a bony structure The roentgenograms made possible a diagnosis which could not have been reached by physical examination alone From these it was evident that there was present a cystic condition with complete calcification of the cyst wall, and that the cyst contents consisted of fluid and air That was a communication between the cyst and the lung was clinically evident because of the periodic expectoration of large amounts of sputum The roentgenogram apparently showed this point of communication Following the roentgenologic studies diagnostic efforts were directed toward establishing the nature of the cystic condition There was no evidence of tuberculosis, no eosinophilia and no characteristic findings in the sputum, such as hooklets or hairs Etiologically, there was no history of pulmonary affections, of trauma of the chest or of intimate association with dogs A positive diagnosis could not be made before operation The diagnoses suggested were encapsulated empyema, hematoma of the thorax, echinococcus cyst and dermoid cyst

Annals of Ophthalmology, St Louis

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33 Some Phases of Diagnostic and Therapeutic Uses of Tuberculin in Uveitis H Woods, Baltimore —p 223
34 Internal Secretory System and Eye R S Lamb, Washington, D C —p 239
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36 Lupus Vulgaris, Particularly in Its Involvement of Ocular Structures B Chance, Philadelphia —p 246
37 Case of Lupus of Conjunctiva and Cornea C E G Shannon and L W Hughes, Philadelphia —p 255
38 Pressure Changes in Curvature of Cornea, Due to Chalazion and Other Lid Tumors T W Moore, Huntington, W Va —p 257
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42 Tuberculosis of Retinal Vessels with Recurring Hemorrhages and Proliferating Retinitis F R Spencer, Boulder, Colo —p 272

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46 Diagnosis of Pellagra E J Wood, Wilmington N C —p 139
47 Symptoms vs Physical Signs in Early Diagnosis of Pulmonary Tuberculosis P H Ringer, Asheville, N C —p 145
48 Clinical Consideration of Temperature of So Called Obscure Origin in Infants and Children H Lowenburg, Philadelphia —p 150
49 Gastric Disturbance in Gallbladder Disease W F Cheney, San Francisco —p 164
50 Syphilis of Stomach Diagnosis and Treatment B B V Lyon, Philadelphia —p 169
51 *Diagnostic Sign of Gastro Enteroptosis C D Aaron, Detroit —p 178
52 Early Symptoms and Diagnosis of Acute Infantile Paralysis L. C Ager, Brooklyn —p 180
53 Diagnostic, Prognostic and Therapeutic Value of Lumbar Puncture in Spinal Injuries H Neuhof, New York —p 193
54 *Diagnosis and Prognosis in Fractures of Base of Skull, F E. Bunts, Cleveland —p 196
55 Pain in the Back W S Reynolds, New York —p 202
56 Factors in Prognosis of Syphilis of Nervous System E L Hunt, New York —p 207
57 Diagnosis and Prognosis of Cerebrocerebellar Diplegia L P Clark New York —p 211
58 Degenerate Born Delinquency and Criminologic Heredity J V Haberman, New York —p 218

51 **Diagnostic Sign of Gastro-Enteroptosis** —Aaron states that in cases of gastro-enteroptosis, deep, continuous pressure with the ends of the fingers, over the celiac plexus, in the epigastrium will induce pain The point of sensibility varies in different individuals To locate it, the cooperation of an assistant is necessary With the patient standing, the physician applies his fingers in a series of deep pressures until the point of greatest tenderness is found The fingers are held at this point The nurse then takes a position behind the patient, passes both arms about him so that the hands, meeting in front, rest on the hypogastrium and lifts the abdomen in its entirety This relieves the epigastric pain at once, despite the great pressure exerted by the physician at the point of tenderness When, however, the nurse allows the patient's abdomen to drop to its former position, the deep pressure continuing, the pain reappears Aaron has found this sign to be constant in gastro-enteroptosis In organic disturbances, such as gastric ulcer, carcinoma, etc , the pain under pressure continues even when the abdomen is lifted

54 **Fractures of Base of Skull** —As the result of his clinical experience, Bunts has formulated the following rules for his guidance First, simple cases of fracture of the base of the skull without severe laceration of the brain practically all get well without operative interference Second, the greatest cause of danger in these cases is from septic meningitis and operation cannot prevent this complication, but rather adds to its probability Third, the bad cases, complicated by a bursting fracture of the skull with an extensive laceration of the brain, practically all die Fourth, it is in this class of cases that operations such as removing spicula of bones, crushed brain, etc are most frequently resorted to, but

usually without avail Fifth distinct compression symptoms coming on immediately after the injury without obvious evidence of extensive brain laceration would probably be deserving of decompression operation for they might be due to hemorrhage and be susceptible for relief or arrest Sixth late symptoms of compression with beginning choked disk might be due either to hemorrhage or edema and should be subjected to immediate operation though in the one case in which Bunts had an opportunity to follow this plan operation and subsequent necropsy showed no clot very slight hemorrhage but extensive laceration of the brain not only in the lowest frontal convolution near the site of fracture, but in the occipital region far from the fracture the laceration of the brain was even greater than in the frontal Seventh there are insufficient available statistics as yet to show that decompression operations hasten the recovery after fracture of the base, or lessen subsequent liability to cerebral disturbances

Archives of Internal Medicine, Chicago

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59 Hay Fever and Hay Fever Pollens W Scheppegrell New Orleans —p 959
60 Systolic Blood Pressure Following Exercise Remarks on Cardiac Capacity D L Rapport Boston —p 981
61 *New Interpretation of Pathologic Histology of Hodgkin's Disease D Symmers New York —p 990
62 Treatment of Syphilis of Central Nervous System D A Haller Boston —p 997
63 *Salicylates Renal Functional and Morphologic Changes in Animals Following Administration of Salicylate P J Hanzlik and H T Karsner Cleveland —p 1016
64 *Id Further Observations on Albuminuria and Renal Functional Changes Following Administration of Full Therapeutic Doses of Salicylate P J Hanzlik R W Scott and T W Thoburn Cleveland —p 1029
65 Influence of Nonspecific Substances on Infections J W Jobling Nashville Tenn —p 1042
66 *Effect of Pituitary Injection on Blood Pressure of Febrile Patient H B Schmidt Ann Arbor Mich —p 1059
67 Diminished Blood Platelets and Marrow Insufficiency G R Minot Boston —p 1062
68 Reaction of Cerebrospinal Fluid L D Felton R G Hussey, and S Bayne Jones Baltimore —p 1085

60 **Systolic Blood Pressure**—The work reported on by Rapport was done at the Hampstead Military Hospital, London, which institution has been set aside by the British War Office for the investigation and treatment of soldiers suffering from cardiac disabilities The conclusion drawn is that as an immediate sequence of accomplished exercise whether that exercise is moderate in degree or whether it calls forth a full effort on the part of the person who performs it there is a rise of systolic blood pressure The curve rises from a little above the original normal level to a point far above it, the rise is abrupt and has largely escaped detection on this account This rise in cases in which it is discovered, is spoken of by Barringer as the delayed rise and by him is considered to show that the exercise which produces it has overlooked the heart With this conclusion Rapport disagreed He says that to speak of the rise (delayed rise) itself as an index of a change in the circulatory reaction is unsound, to speak of a delay in the full development of the rise with severe effort is usually to speak correctly Rapport regards Barringer s method of ascertaining the shape of the blood pressure curve to be without value on account of the large variations in pressure which occur in the fraction of a minute following accomplished exercise

61 **Hodgkin's Disease**—According to Symmers, Hodgkin's disease is primarily neither an infective nor a neoplasmic lesion of the lymph nodes, but a systemic disease which expresses a predilection for lymphoid tissues, giving rise to multiple foci of growth at approximately the same time and in response to the same provocative agent The provocative agent, whatever its nature and origin may be, causes preliminary hyperplastic changes in the lymphoid tissues and initiates disturbances in the bone marrow, characterized, among other things, by proliferation of the nongranular mononuclear cells of the lymphocytic type, eosinophils and eosinophilic myelocytes These cells together with the myeloplaxes, are thrown into the circulation and filtered out by the lymph nodes or deposited in them in response to chemotactic attractions, the fibrotic changes in the recipient tissue representing a purely local reactive process The histologic changes beyond the lymphoid system proper, namely, in the liver, kidneys, etc , represent a reaction on the part of normally existing lymphomatous foci to the same toxic substance which is responsible for the disturbances in the bone marrow and for the myeloid transformation of the lymph nodes

62 **Treatment of Syphilis**—Haller's paper consists of a description of the preparation of mercurialized serum and of a tabulation of the results obtained from its use in forty five patients to whom 150 doses were given, with a comparison of these results and those obtained in previous cases with salvarsanized serum Eleven patients previously treated with salvarsanized serum were each given three or more intraspinal treatments with mercurialized serum, a total of thirty-eight doses The effect on the Wassermann reaction cell count and clinical symptoms was in every case equally as good as if not better than from the same amount of salvarsanized serum The reactions in every case were more severe than with the salvarsanized serum

63 **Salicylates**—The administration of salicylate in doses corresponding to full therapeutic doses for human beings per kilogram of body weight, Hanzlik and Karsner say causes the appearance of albumin leukocytes casts or castlike bodies and sometimes red blood corpuscles in the urine of animals (cats dogs and one rabbit) A preexisting albuminuria is aggravated by the administration of salicylate The albuminuria is of direct renal origin So far as the nonprotein and urea nitrogen of the blood are concerned there is a diminution in renal functional efficiency Morphologically, a lesion of the kidney appears varying in severity from simple cloudy swelling of the epithelium of the proximal convoluted tubule to extensive cloudy swelling of all the cortical parts of the tubules, associated with an acute intracapillary glomerulitis the latter process being denominated as an acute tubular nephritis

64 **Renal Functional Changes Following Administration of Full Doses of Salicylate**—The administration of salicylate in full therapeutic doses invariably causes the appearance of albumin white blood corpuscles and granular casts or castlike bodies in the urines of normal rheumatic, nonrheumatic, febrile and afebrile persons The albuminuria is not of febrile origin but due directly to the drug A preexisting albuminuria is aggravated by the administration of salicylate. So far as renal functional efficiency is concerned, there is a diminution This is indicated by (1) lessened water excretion [taken in connection with (2) and (3)], (2) diminished phenolsulphonephthalein excretion, and (3) accumulation of urea nitrogen of the blood The administration of bicarbonate together with salicylate has practically no demonstrable influence on the albuminuria and renal functional changes produced by the salicyl

66 **Effect of Pituitary Injections on Blood Pressure of Febrile Patients**—Twenty-seven observations were made by Schmidt on fifteen patients Of these, six had pulmonary tuberculosis, three infectious sore throat, one exophthalmic goiter, three lobar pneumonia, one surgical shock, and one was convalescing from typhoid From 1 to 1 5 c c. of extract of pituitary gland was injected deep into the muscle of the arm The blood pressures were taken several times before the injection, and thereafter at intervals of about fifteen minutes for a period of one hour or more The pulse rate, temperature and rate of respiration were also noted Aside from an occasional slowing of the pulse rate, which never exceeded ten beats per minute, no definite change in these occurred Before the injection the pulse was usually of a bounding character (pointed or collapsing pulse) Following the injection it could often be felt to become smaller and more sustained This change was usually noted in the observation made fifteen minutes after the injection, and it continued for an hour or more The systolic blood pressure after pituitary injections was not altered in any constant or striking manner The rise in the diastolic pressure amounted in some instances to 15 mm Hg, or more, and this, together with its time and relative constancy, made it certain that it

was due to the action of the drug The impression was gained, furthermore, that the rise in diastolic pressure was most striking and constant when the pulse was of a definitely pointed form No effect on the pulse or blood pressure was observed when the pituitary extract in doses of 2 c c, or when pituitary substance in doses of 15 grains of the desiccated gland, was administered by mouth

Annals of Surgery, Philadelphia

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69 Surgical Experience and Surgical Knowledge J E Sweet, Philadelphia —p 673
70 *Results of Treatment of Lymphosarcoma by Means of Roentgen Rays and Other Methods A F Holding, New York —p 686
71 Histologic Study of Circular Suture of Blood Vessels C Goodman, New York —p 693
72 *Studies in Regeneration and Growth of Bone B Brooks, St Louis —p 704
73 Congenital Lipomata of Cheek, Report of Two Cases J Ransohoff, Cincinnati —p 711
74 Case of Secondary Hemorrhage Treated by Ligation of Common Carotid Artery W Bartlett and O F McKittrick, St Louis —p 715
75 Study of Motor Disturbances Accompanying Ulcer of Stomach or Duodenum and Changes Produced by Operation A O Wilensky, New York —p 730
76 *Anatomic Point which Facilitates Location and Delivery of Appendix D Guthrie, Sayre, Pa —p 742
77 Cystic Dilatation of Vermiform Appendix P J Reel, Columbus —p 743
78 Typhoid Spine, Report of Case A H Levings, Milwaukee, Wis —p 747

70 **Results of Treatment of Lymphosarcoma**—A series of thirty-five cases of lymphosarcoma observed by Holding offers an unusual opportunity for comparing the results of different methods of treatment in this disease The series includes several anatomic types, as lymphocytomas, large round reticulum cell sarcomas, tumors approaching atypical Hodgkin's disease in histology, and lesions approximating the chronic granulomas It does not include any of the embryonal epithelial tumors (endotheliomas nor infectious granulomas) which frequently resemble lymphosarcoma so closely that they are diagnosed as such The duration of the disease varied from two months to seven years In fifteen of the cases the disease first manifested itself in the tonsil, in fourteen of the cases the disease first affected the cervical glands, and in six cases other glands in the body were first affected Cases with primary manifestations occurring in the tonsil were most malignant Thirty of these patients are dead or dying Five are symptomatically well In twenty-two patients from one to five operations had been performed, and the patients presented with postoperative recurrences In none of the cases was excision used alone In most of the cases several methods of treatment were used Three patients were treated with autogenous vaccine derived from tumors excised from the patient, one patient was treated with serum from a goat which had been given immunizing doses of a diphtheroid organism isolated from the patient's tumor, one patient was treated with colloidal copper, two with other experimental methods, all of which yielded no conclusive therapeutic results Eight patients were treated by surgical operations followed by mixed toxin treatment, of these, one has been symptom-free for four years, five are known to be dead and two disappeared from observation

Nine patients were given mixed toxin treatment at first and grew worse, other agents resorted to were radioactive methods, and the patients made rapid improvements as soon as this change was made, one of these patients became symptom-free The other four toxin patients who were not put on radioactive treatment did not improve One patient was treated by mixed toxin alone, he was unimproved and is now dead Fourteen patients were treated with mixed toxin in conjunction with other methods, six were improved, six were unimproved, two disappeared from observation Five patients were treated with Roentgen rays alone, of these, one has been symptomatically well for three years, in two the masses disappeared but later presented in other parts of the body and both patients are now dead, the other two patients were unimproved Twenty-three patients in all were treated with massive doses of Roentgen rays, of these fifteen were improved Two patients were treated with radium alone, one has been symptom-free for one year, the other was improved for a time but is now dead Seven patients were treated with radium in conjunction with other methods, one has been symptom-free for one year, six were improved Five patients have been symptomatically well, respectively, three years, four years, three and one-half years, one year and one year Thirteen patients were improved Of the thirty-five patients, nineteen are known to be dead, one is dying, five have disappeared from observation Thirteen patients of the thirty-four were improved for periods varying from one month to one year Twelve patients of the series were unimproved

72 **Regeneration and Growth of Bone**—The experiments reported on by Brooks show that sodium alizarin sulphonate when given by mouth, subcutaneously or intravenously has selective intravital staining properties, and that it stains only bone which has been but recently formed or is formed during the period the dye is in the circulation The use of sodium alizarin sulphonate experimentally furnishes a valuable method in the study of the problems of regeneration and growth of bone

76 **Anatomic Point which Facilitates Location and Delivery of Appendix**—The attachment of the lower root of the mesentery opposite the sacro-iliac joint marks the point of juncture between the ileum and the cecum By its location, Guthrie says, the appendix can be found readily and delivered without drawing any of the colon or the small intestine out of the wound The advantages are obvious With so little trauma to the intestine, the postoperative convalescence is made comfortable, the danger of infection is lessened, and the time of operation shortened within reasonable limits The method can only be employed in cases in which the appendix lies free in the abdomen

Boston Medical and Surgical Journal

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79 Military Medicine, Means to Perpetuate Its Teaching in Massachusetts P E Truesdale, Fall River —p 825
80 Gastric and Duodenal Ulcers J S Rodman, Philadelphia —p 834
81 Practicing Physician and Public Health M. E. Champion, Wollaston —p 840
82 Case of Congenital Anomaly of Larynx G H Powers, Boston —p 843

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83 Physiologic Factors Concerned in Surgical Shock W B Cannon Boston —p 859
84 *Recognition of Pancreatic Insufficiency, with Special Reference to Loewi Test H R Decker, Pittsburgh —p 867
85 Some Unusual Conditions Observed in Two Hundred and Forty Five Postmortem Examinations at Danvers State Hospital L G Lowrey, Boston —p 872
86 Some Conditions Leading to Incorrect Diagnosis of Adenoids in Children V Dabney, Washington, D C —p 875
87 *Barány s Sign in Epileptics and in Schoolchildren E. A Tracy, Boston —p 877

84 **Pancreatic Insufficiency, Reference to Loewi Test**—In 500 cases in which the Loewi test was applied there were eighteen positive reactions, only two of which were known to have pancreatic lesions, one, a case of carcinoma of the pancreas, the other, chronic pancreatitis associated with gallstones In fifteen gallbladder cases there were three positive reactions In only one of these was the pancreas involved From this record it is apparent (1) that the reaction is not pathognomonic of pancreatic disease, (2) that it is absent in cases which by other methods are proved to have pancreatic lesions

87 **Bárány's Sign in Epileptics and in Children**—Tracy examined fifty patients at the Monson State Hospital for epileptics Barany's sign, conjugate deviation of the eyes was found present in twenty-three cases, the conjugation pointing to the left in thirteen of them and to the right in ten Tracy concludes that Barany's sign is not constant in epilepsy, when found It is not rare in apparently normal children

California State Journal of Medicine, San Francisco

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88 Organized Medicine Consideration of Some of Its California Problems G H Kress, Los Angeles —p 186

89 Otitic Meningitis J C Sewell San Francisco—p [illegible]
90 Present and Proposed Legislation for Prevention of Blindness J L Glover San Francisco—p 213
91 Meningitis of Nasal Origin H McNaught San Francisco—p 217
92 Ectopic Pregnancy Report of Case W I Jordan Houston—p 218

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94 Boric Acid in Treatment of Pneumonia and Other Affections Caused by Diplococcus of Weichselbaum This is the Meningococcus Not Pneumococcus J H Ochsner Chicago—p 371
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96 Medical Legislation in Illinois C St C Drake, Springfield—p 379
97 The Dolourous Report of Case C W Robinson Kansas City Mo—p 381
98 Alcoholism as Observed at Sceleth Hospital of House of Correction with Necropsy Finding C E Sceleth Chicago—p 387
99 Some Experience with [illegible] C V Hanford Chicago—p [illegible]
100 Arteriosclerosis and Its Relation to Mental Disease L J Leonard Chicago—p 393
101 Case of Folie a Deux S N Clark Kankakee—p 395
102 Present Status of Epidemic Poliomyelitis A L Hoyne Chicago—p 401
103 Chronic Appendicitis C D L [illegible] Chicago—p 403
104 Antiseptics and Germicides Uses and Misuse S J Russell Chicago—p 405
105 Safety First in Anesthesia T L Dagg Chicago—p 407

Journal of Laboratory and Clinical Medicine, St Louis

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106 Smallpox Vaccination at University of California J N Force Berkeley Calif—p 599
107 Report on Prophylactic Vaccination with B Typhosus B Paratyphosus A and B Paratyphosus B W C Davison Brooklyn—p 607
108 Significance of Lamblia Intestinalis in Stool Examinations A H Logan and A H Sanford Rochester Minn—p 618
109 Chloroma Report of Case R H Boots Pittsburgh—p 622
110 Thymus P C Woolley Cincinnati—p 63[illegible]
111 Orthostatic Albuminuria A J Beifeld Chicago—p 639
112 Diastolic Pressure in Aged L M Bowe Chicago—p 641
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114 Splenomegalia J W Shuman Sioux City Iowa—p 647
115 Quantitative Separation of Heroin from Organs W D McNally Chicago—p 649
116 Preparation of Protein Extracts for Diagnostic Cutaneous Tests N S Ferry, Detroit—p 655
117 Studies of Complement Relation to Certain Test N E Williamson Stockton Calif—p 658

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118 Improvements in Treatment of Wounds During Present War I Abell Louisville—p 264
119 *Rheumatism from Modern Viewpoint S J Meyers Louisville—p 273
120 Tuberculous Meningitis J R Morrison Louisville—p 277
121 Then and Now B P Earle Dawson—p 280
122 Radium Treatment of Cervical Cancer Report of Case L W Frank Louisville—p 282
123 Complications in Operative Treatment of Uterine Tumors J G Sherrill, Louisville—p 284
124 Infections of Hand Their Diagnosis and Treatment H McKenna Louisville—p 290
125 Endocarditis W R Burr Auburn—p 293

119 Abstracted in The Journal, Dec 2, 1916 p 1693

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126 Importance of Duodenal Alimentation in Severe Dyspepsia Occurring After Gastro Enterostomy M Einhorn New York—p 1023
127 Venous Stasis and Colloidal Diffusion as Etiologic Factors of Gastroduodenal Ulcer F B Turck New York—p 1026
128 Explanation and Meaning of Babinski Sign M Solomon Chicago—p 1029
129 Intraspinal Medication in Treatment of Syphilitic Disease of Nervous System. L M Gaines Atlanta Ga—p 1034
130 Splenic Anemia with Cirrhosis of Liver and Ascites H M Moses Brooklyn—p 1037
131 Carcinoma from Standpoint of General Surgeon C G Heyd New York—p 1039
132 Poisonous Principle of Poison Oak Nonbacterial J B McNair Pasadena Calif—p 1042

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133 Constitutional Aspect of Ordinary Chronic Dyspepsia C S Fischer New York—p 1081
134 Liquid Paraffin Dressings D H Stewart New York—p 1087
135 Megacolon in Childhood, Its Medicosurgical Treatment A [illegible] Cleveland—p 1089
136 Prognosis in Pulmonary Tuberculosis P C Bartlett, Boston—p 1091
137 Practical Value of Chemistry to Medicine J S Hammett, Los Angeles—p 1093

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138 Collection and Evacuation of Sick and Wounded from Front to Base T H Goodwin—p 609
139 Diagnosis of Tuberculosis in Military Service G E Bushnell—p 6[illegible]9
140 Sanitary Service of Austro-Hungarian Army in Campaign J H Ford—p 6[illegible]
141 Epidemiologic Study of Outbreak of Measles, Camp Wilson San Antonio Texas E L Munson—p 666
142 Illinois Camp of Mobilization Springfield, June 19 to August 7, 1916 J Frank—p 680
143 Effects of Submarine Duty on Personnel W W Cress—p 699
144 Administrative Technic of Antityphoid Inoculations J H Allen—p 710

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146 Blood Chemical Methods in Diagnosis and Prognosis R B H Gradwohl St Louis—p 235
147 Roentgen Rays in Diagnosis of Gastro-Intestinal Complications I H Kessler St Louis—p 239
148 Conservative and Surgical Management of Gonorrheal Pyosalpinx W Kerwin St Louis—p 243
149 Case of Solanin Poisoning from Eating Raw Potatoes F H Roberts Marshfield—p 247

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150 Clinical Aspects of Diseases of Ductless Glands J Sailer Philadelphia—p 1121
151 Genito-Urinary Diseases and Life Assurance B A Thomas Philadelphia—p 1125
152 Some Misleading Medical Fads of Time B Robinson New York—p 1130
153 Massage Kinesitherapy, and Bandaging in Treatment of Displaced Semilunar Cartilages on Knee Joint D Graham Boston—p 1130
154 Digitalis R F Ives New York—p 1135
155 Thymol Treatment of Trichinosis M Kahn Pittsburgh—p 1137
156 Radium Treatment of Tinnitus and Middle Ear Deafness I Sobotky Boston—p 1138
157 Urologic Diagnosis I J Parmenter, Buffalo—p 1139

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1 Physiologic Basis of Electric Tests *in* Peripheral Nerve Injury E D Adrian—p 379
2 Use of Roentgen Rays in Great War with New Method for Location of Foreign Bodies A C Straw—p 392
3 Case of Pin Swallowing H Black—p 395

Journal of Tropical Medicine and Hygiene, London

May 15 XX No 10

4 *Three Cases of Venereal Granuloma Treated with Tartar Emetic C Bonne—p 109
5 Case of Recurrent Bilharziosis J L Potts—p 110

4 Venereal Granuloma Treated with Tartar Emetic—Bonne cites the case of a woman with an inoperable venereal granuloma extending into the rectum and vagina The septum between vagina and urethra was partly destroyed, and the woman actually passed the urine into the vagina Of both labia majora the skin on the outer side and the mucous membrane on the inner side were involved by granulomatous tissue. Part of one of the labia was elephantoid The patient had been in the hospital for longer than a year, and had been treated locally with cauterization, ointments, etc, without any permanent benefit Then injections of tartar emetic were given in several places wherever the very small veins could be made visible, the solution containing 1 mg of tartar emetic in 1 c c of normal saline In the first injection 60 c.c. were given containing 60 mg of the drug, it was preceded by 50 c c of normal saline, and the last traces of tartar emetic were washed out of the apparatus by another 50 c c The tartar emetic cannot reach the subcutaneous tissue in this way, if only good care is taken that the point of the needle is in the lumen of the vein If this condition is fulfilled, the patient does not complain of pain either during or after the injection The patient stood this first injection well, and after four days a second one was given of 150 c.c, followed by eight injections each of 150 c c at intervals of four to seven days Already after the fourth injection the condition was improved, and after the tenth the granulomatous tissues were replaced by healthy epithelium The woman did not get back a normal urethra and a normal vagina, of course, and also the elephantoid thickening of the labium had not disappeared, although it had diminished in size There was still a slight mucopurulent discharge from the vulva, kept up by the abnormal passage of the urine, but the granuloma had disappeared Equally good results were obtained in two other cases

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6 Work Done by Field Ambulance in France E M Ramsden —p 371
7 *Vincent's Angina in Liverpool Camp* H H Willis —p 373
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9 Huntington's Chorea S E Jones —p 376
10 Case of Nerve Tumor, Removal and Attempted Heterogenous Transplantation H F J Norrie —p 377

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12 War Surgery at Front C MacLaurin —p 416
13 Raynaud's Disease P E W Smith —p 418
14 Unusual Case of Vesical Calculi C E Todd —p 420

National Medical Journal of China, Shanghai

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15 Problems Before Medical Profession of China W Lien Teh —p 5
16 Nature of Plague Prototoxins F Eberson —p 10
17 Spinal Anesthesia with Tropococain H A Cheng —p 17
18 Case of Pyonephrosis Caused by Impaction of Renal Calculus C H Fun —p 20
19 Chinese Medical Superstitions K C Wong —p 22

Quarterly Journal of Medicine, Oxford

April, X, No 39

20 *Some Actions of Anesthetics Analyzed by Observation of Altered Cardiac Relations to Calcium W Burridge —p 141
21 *Researches on Perfused Heart Action of Strychnin, etc, on Tetanus W Burridge —p 157
22 *Id Actions of Epinephrin on Addison's Disease W Burridge —p 163
23 Pathology of Dysentery in Mediterranean Expeditionary Force, 1915 G B Bartlett —p 185
24 *Diabetes Innocens G Graham —p 245

20 **Actions of Anesthetics** —The anesthetics, alcohol, chloroform and ether, Burridge claims have each a twofold action on the heart (*a*) a depressing action reached quickly on addition of drug to perfusing solution, and disappearing directly after its removal, (*b*) a favoring action which shows a time factor in its appearance and especially its disappearance When the depressing action is present more calcium must be added to the perfusing solution to produce effects of a given intensity, that is, to evoke contractions of half the maximum possible amplitude, than is the case in absence of drug The favoring action is associated with an opposite relation to calcium The two actions varied with each drug and with its concentration

21 **Action of Strychnin, etc, on Tetanus** —During the course of certain experiments Burridge had occasion to make healthy hearts abnormal When so made abnormal they were exposed to the action of various drugs and agencies The experiments showed that in a particular abnormal state three drugs strychnin, atropin and ergotoxin produced effects not observed under more normal conditions In the normal perfused heart each of these drugs in large doses depresses the amplitude of contraction, the usual view of the action regarding it as a weakening of the muscle fibers Burridge did not find, however, that the depressing action of these drugs on spontaneous contractility was accompanied by any corresponding diminution in the amplitude of the contraction evoked by potassium chlorid, that is, the contractile substance can still contract fully He did find that when their depressing action was present, the heart became less responsive to calcium than was the case before, and that their depressing action could be overcome temporarily by adding more calcium to the perfusing solution It was also antagonized by epinephrin and digitalis From the conditions governing the production of this abnormality, and the conditions governing its removal, it is concluded that the particular effect produced by these drugs follows on an ability on their part to cause a degree of relative calcification of the tissues Tissues brought under the influence of these drugs take up more calcium from the perfusing solution than would otherwise be the case

22 *Actions of Epinephrin on Addison's Disease* —Burridge found that epinephrin has a twofold action on the frog's heart, a primary depressing action resembling inhibition, and an augmenting action, the sympathomimetic action Three factors are found to be concerned in the depressing action of epinephrin The relations between epinephrin and calcium are fourfold The evidence is given that traces of epinephrin render balance between the constituents of an inorganic saline perfusing solution of secondary importance in regard to its suitability as a medium for the manifestation of cardiac activity It is shown that the behavior of a heart perfused with a well balanced Ringer's solution never approximates to the behavior of the blood containing heart and that the change takes place immediately after the one solution replaces the other It is shown that as inorganic perfusing solutions become unbalanced in a certain direction, so the behavior of the heart on them tends to approximate to that of the blood containing heart. Such solutions contained amounts of potassium sufficient to interfere with cardiac activity Traces of epinephrin rendered them capable of maintaining cardiac activity and of preserving in great measure the resemblances between the behavior of the heart perfused with them and of the heart containing blood On the basis of these experiments it is suggested that the proportions between the inorganic constituents of blood are such as to render it an unsuitable medium for the manifestation of cardiac activity except in presence of epinephrin The origin of certain symptoms of Addison's disease is traced to such lack of balance

24 **Diabetes Innocens** —Five cases of an innocent type of glycosuria which is not associated with renal disease are cited by Graham There are at least two types of this disease (*a*) in cases in which the output of the sugar is very small and is not appreciably altered by a dose of sugar, (*b*) in cases in which the output of sugar is rather greater and is increased to a certain extent by a dose of sugar, the level of the blood sugar is also appreciably altered by the dose of sugar The relation of the amount of sugar excreted and of the amount of sugar in the blood suggests that the sugar is actively excreted by the kidney The prognosis is good The diagnosis should only be made after careful sugar tests

Archives de Médecine des Enfants, Paris

May, XX No 5, pp 225 280

25 *Different Character of Measles in Town and Country J Camescasse —p 225
26 *Antigonococcus Vaccine in Treatment of Vulvovaginitis in Children Condat.—p 245
27 Mild Dacryocystitis Complicated with Purulent Meningitis and Sinus Phlebitis Condat —p 254
28 *Adenosarcoma of Right Kidney in Girl of Six E Kirmisson and Tretiakoff —p 257
29 Present Status of Epidemiology of Whooping Cough J Comby —p 263

25 **Measles Milder in the Country** —Camescasse declares that his experience with measles has convinced him that city children with measles or having been exposed to it should be sent to some hospital in a rural district Measles in country children always ran an extremely mild course in his practice as a country practitioner He has also been impressed

with the similar mildness of the course of the disease since he has been in charge of a hospital in the country near Paris If we cannot suppress measles entirely we can at least simplify it he remarks His dream he says is to have some accessible institution in the woods with an automobile to pick up in the city the children with measles and those who have been exposed Measles in itself is bad enough for slum children but its chief danger is that it throws down the barriers against tuberculosis If this dream of his could be realized he adds the great reduction in the mortality as a whole which would result he is convinced might justify the transference to the country of a whole schoolroom of children and their teacher when measles threatens

26 **Vaccine Therapy of Vulvovaginitis** —Condat here reports twenty four additional cases bringing to forty the number of little girls with vulvovaginitis whom she has treated with antigonococcus vaccine She says that it has been constantly effectual all were cured with one exception This was a child of over 7, infected by its mother The vulvovaginitis had kept up for a year, showing no improvement under vaginal injections of potassium permanganate The thick discharge grew thin and insignificant in the course of the vaccine therapy but a complete cure was not realized even in a three months course of the vaccine In five cases four or six injections answered the purpose others required up to sixteen and a few still more In the first series the children were in the institution and the repose aided in the cure so that an average of seven injections was all that was necessary The children were outpatients in this second series and some had long distances to walk which rendered conditions for healing less favorable The treatment was more successful in the younger children from 18 months to 2 or 4 years old as the affection was comparatively recent In older girls it may have lasted a long time before it is discovered and it is harder to dislodge There has been no recurrence in any of the children but two have returned with new infection. It was promptly aborted with two injections of the vaccine The vaccine is injected into the muscles of the outer front of the thigh She makes three injections a week until the discharge begins to grow less then two and then one a week. The course requires from two weeks to an average of two months Vulvovaginitis in little girls seems to be more frequently encountered now than before the war

28 **Adenosarcoma of Right Kidney in Girl of Six** —The child was brought to the hospital with the diagnosis of acute appendicitis but the trouble proved to be pneumonia As this subsided the tumor was discovered and the kidney involved was successfully removed It was evidently of embryonal origin and had developed malignant features only recently

Archives Médicales Belges, Paris

April LXX No 4 pp 289-384

30 *Current Anomalies of the Body A Brachet —p 289
31 War Wound of Neck with Claude Bernard Horner Syndrome H Burger —p 309
32 Factitious Conjunctivitis E Rasquin —p 321
33 Present Status of Heart Block H Fredericq —p 326

30 **Current Anomalies of the Body** —Brachet is professor of anatomy at the University of Brussels, and he here describes various anomalies of the skeleton muscles, nervous and vascular systems He refers only to current ones such as are constantly encountered in the dissecting room, supernumerary or lacking muscles abnormal location or bifurcation of some peripheral nerve, vein or artery It is possible, he suggests that the workings of Mendelian laws may be traced in these anomalies

Journal de Médecine de Bordeaux

March LXXXVIII No 4 pp 61-80

34 *Technic for Amputations. Fieux —p 63
35 *Advanced Dressing Station (Poste de secours) Cheyron —p 68
36 *Gathering in the Wounded H G Morin.—p 71

34 **Technic for Amputations** —Fieux bases his technic on study of the present condition of men whom he has had to amputate in the course of the war In case of much shock he injects hot saline through a conical glass cannula introduced into the large vein of the stump He sutures the stump, when the surgical toilet can be complete, under forcible eversion exploring every crevice as far up as it is possible to separate tissues with the fingers In the twenty-six cases thus treated, he had to cut two or three of the stitches in six cases, but this did not interfere with the regular healing The surgeon himself must watch over the case for the first five or six days, ready to interfere at the slightest sign that all is not going well

35 **The Advanced Dressing Station During an Offensive** — Cheyron's long experience is here crystallized into directions for the equipment placing and management of the first aid stations and arrangements for bringing in the wounded He writes from the standpoint of the medical officer of a battalion It is not an instructive position as the surgeon is not able to trace further the cases that pass through his hands He regards Menciere's iodoform-Peruvian balsam spray as extremely valuable for first aid work when the wounded are coming in in large numbers (It was described in these columns Dec 4 1915 p 2040) After the surgical toilet of the wound he cleans the vicinity with gasoline, and then sprays the Menciere mixture copiously into all the cracks and crevices of the wound This can be done by any one It seems to embalm the tissues in the wound and wards off septicemia tetanus and gangrene Every wounded man should be refreshed with tea coffee rum, quinin or kola and measures applied to keep him warm

36 **Gathering in the Wounded** —Morin describes the methods that have been worked out to ensure the greatest economy of time of helpers and of material during an offensive movement of the troops

Lyon Médical

May CXXVI No 5 pp 205-252

37 *Symptoms from Pleura Lungs and Pericardium in the Course of Acute Articular Rheumatism J Mollard and M Favre —p 205
38 Ileocecal Tuberculosis Guerin —p 214
39 Aneurysm of Internal Carotid and Jugular Bulb M Patel and M Lannois —p 227
40 Emetin Treatment of Amebic Dysentery C Garin —p 249

37 **The Pleura and Lungs in Acute Rheumatism** —Mollard and Favre declare that the pleurisy of acute rheumatism has certain characteristics which distinguish it and give the clue for effectual treatment as it usually yields promptly to the salicylates Left untreated serious lesions may be installed which might easily have been averted The rapid invasion of the pleura the fact that both sides are involved, the association with congestion of the lungs and with pericarditis without effusion and the complete subsidence without sequels are the main features of this rheumatismal pleurisy Even without joint trouble bilateral pleurisy of this type should suggest the true cause, but whenever symptoms on the part of the pleura accompany joint trouble the indications for treatment are clear The pleurisy may persist after recovery from the acute rheumatism, or it may develop with only latent or no joint involvement In this event it is likely to be mistaken for a tuberculous affection and thus fail to get the treatment it requires He knows of instances of this the result being established endocarditis, adhesive pericarditis, etc. Other features are the fixity and the long duration of the pleural effusion, for weeks or a month or more, its moderate amount, the invariable accompanying congestion in the lungs and the usually mild character of the pains in the chest Under sodium salicylate the pleurisy is arrested and the lung symptoms retrogress The pleural effusion takes longer to subside

38 **Ileocecal Tuberculosis** —In three of the six cases described the diagnosis of appendicitis had been made at first When the appendix is removed in such cases, it may be found normal notwithstanding the two or three or more years of discomfort and pains in the appendix region The cecum at the appendicectomy may look merely a little redder than usual If the stretch involved had been resected at this time the disease would have been eradicated in an early stage Even when the cecum looks inflamed, this may be merely an inflammatory reaction to appendicitis Tuffier has reported such a case, the inflammatory tumor subsiding completely

after mere ileocolic anastomosis Concomitant pulmonary tuberculosis may give the clue Resection of the stretch of bowel involved is the only safe treatment, the incision should be along the outer margin of the rectus muscle Separation and hemostasis may be long and difficult, especially if there is much fat around the bowel

Paris Médical

May 12, VII, No 19, pp 389 404

41 Amebic Dysentery in France C Dopter —p 389
42 *Periods of Subnormal Temperature as Epileptic Equivalents after Trephining P Carnot and A de Kerdrel —p 395
43 *Reduction of Fractures under Screen Control F Masmonteil —p 398
44 Typhoid Gangrene in Girl of Five Requiring Amputation A Vinache —p 402

42 **Periods of Subnormal Temperature as Epileptic Equivalents** —The case related throws light on the question of the existence of a heat center in the cortex The young man had been trephined for a bullet wound of the forehead, and seven months later his temperature dropped below normal for several days at a time, down to 34 2 C (93 5 F) This occurred several times, preceding or substituting attacks of Bravais-Jacksonian epilepsy, symptomatic of irritation of the cortex The trephining followed two hours after the frontal bone had been fractured and part driven in There was hemiplegia at first, but no aphasia no headache, no visual disturbances or convulsions for seven months Then the epileptic seizures and hypothermia developed with painful contracture, all occurring in connection with each other, at irregular intervals, evidently the result of cicatricial pressure on the frontal lobe

43. **Reduction of Fractures Under Screen Control.**—Masmonteil combines continuous extension with lateral traction and suspension, with screen control of conditions as compared with preceding radiographs He gives an illustrated description of the modifications all this requires in the usual apparatus

Presse Médicale, Paris

April 16, XXV, No 22 pp 217 232

45 Apparatus for Compound Fracture of the Humerus with Injury of the Elbow C Coulon —Title page
46 *War Neurology Editorial —p 217
47 Resection of Shoulder by Posterior Incision J de Fourmestraux —p 220
48 Injection of Arsenobenzol in Minimal Dilution M. Favre and Massia —p 221
49 *Carbon Dioxid (L'anhydride carbonique) H Roger —p 222

46 **Present Status of War Neurology** —This comprehensive review is peculiar in that while recent discoveries and achievements in neurology are described in detail no names are mentioned, and the article is unsigned It opens with the statement "If the tax on war profits were applicable to scientific acquisitions, then neurology of all the domains of medicine would have to pay the heaviest tax For during the last three years it has been enriched in a surprising manner The war has applied to man experiences hitherto made only on laboratory animals, and the creation of 'neurologic centers' for the wounded has resulted in definite conclusions by the various groups of experts at these centers and the conclusions are practically identical " The principal scientific truths thus aquired and their practical application are discussed in detail in respect to the brain, spinal cord and nerves, reflex paralysis, neuroses and psychoneuroses Prostheses to correct sciatic and radial paralysis are among the later acquisitions The neurologic centers have proved particularly useful in detecting and sifting out the hysteria element Very few cases of hysteria get past them It is remarkable that the principal forms of hysteria manifestations are found to be the same at all times, at all ages and in all countries, and persuasive electrotherapy and imperiously applied psychotherapy are proving as effectual for war hysteria as under other conditions

49 **Carbon Dioxid** —Roger reviews our present knowledge in regard to the physiologic properties of carbon dioxid and the possibilities of a therapeutic action from it. He also discusses the variations in alveolar carbon dioxid pressure in different diseases, and urges further study of the combination of carbon dioxid with oxygen recommended by Levi in The Journal, 1912, **58,** *773* It is possible, he suggests, that this mixture might prove useful in gas cases

Progrès Médical, Paris

May 12, XXXII No 19 pp 153 162

50 Treatment of War Deafness Marage —p 155
51 Tetanus Restricted to Wounded Leg H Roger —p 157
52 War Wounds of the Eyes Bourdier —p 160 Continuation.

Correspondenz-Blatt fur Schweizer Aerzte, Basel

May 12, XLVII, No 19 pp 593 624

53 *Treatment of Gonorrhea in Swiss Military Hospital G Huber Pestalozzi —p 593
54 *Heredity of Dementia Praecox W Boven —p 605

53 **Treatment of Gonorrhea** —The experience at the Solothurn military hospital confirms the importance of repose and a bland diet as factors in conquering gonorrhea Disinfecting and astringent injections were the reliance in treatment To decide when the men were actually cured, four means of reactivation were tried sudden stoppage of all treatment, introduction of a No 20 Benique catheter, possibly massaging over it, or an irritating injection of a 1 or 2 per cent solution of silver nitrate The drinking of beer was at one time used as a provocative test, but did not prove reliable In 25 per cent of the acute cases no further gonococci could be found after ten or twelve days, in 25 per cent. after two or three weeks In 10 per cent. of the chronic and subacute cases the disease proved refractory

54 **Heredity of Dementia Praecox** —Boven describes some recent statistical research on this subject by Rudin He found 15 86 per cent cases of dementia praecox among the 4 823 brothers and sisters in 701 families, the father and mother not insane but of the Mendelian type D R × D R. Eliminating the children that had died young or had not reached the critical age, the ratio between the healthy and the dementia members of the families was 24 67 per cent Applying Weinberg's method of statistical correction, brings this proportion to 4 48 per cent In another group of thirty-four families with 166 offspring, one of the parents having dementia praecox, the Weinberg ratio is 6 18 per cent Boven cites these figures as showing that Mendelian laws of heredity do not apply to dementia praecox, at least The children in these families included 2,176 males and 2 090 females, a normal proportion between the sexes Rudin mentions that 154 of the parents with the predisposition to dementia praecox married a second time, and there was only one case of dementia praecox among the children of their second marriage

Gazzetta degli Ospedali e delle Cliniche, Milan

April 12 XXXVIII, No 29 pp 449 464

55 *Atypical Convalescent Stage after Acute Infectious Diseases U Baccarani —p 449

April 15, No 30, pp 465 480

56 Horn in Eyebrow of Man of Sixty Four (Keratiasis cutanea) G Matteucci —p 465
57 The Medical Profession after the War E Villa —p 475

55 **Atypical Convalescence** —Baccarani refers to what he calls postinfectious marasmus, the patient, although his infectious disease is over, does not gain but grows weaker, without appetite, the temperature low This phase is usually transient, and then he enters on convalescence But in rare cases it is progressive and the cachexia is fatal He reports two cases of each type, both after typhoid, and points out certain features which render it probable that the trouble with these atypical forms of convalescence is an upset in the system of glands with an internal secretion, but especially of the suprarenals Conditions are like those in the aged when the suprarenal system is worn out, so that postinfectious cachexia might be called fatal acute old age The infectious diseases with a protracted course, like typhoid are the ones most likely to present this atypical convalescence, especially when the cardiovascular symptoms have predominated in the clinical picture He has noticed that this tendency to atypical convalescence may manifest itself anew

after each infectious disease the patient has to pass through The cases cited as examples of the transient type were in older children the fatal case in a man of 69 previously healthy

Policlinico, Rome

May 1 XXII No 9 pp 641 658

58 *Determination of Pentose in the Urine C Testoni—p 641
59 *Utility of Roentgen Examination after War Wounds P Masserini—p 644 Commenced in No 18 p 569
60 *Hernia and Defective Teeth and Heart as Affecting Military Service G Galli—p 652

April Surgical Section No 4 pp 145 192

61 Traumatic Hernia of the Brain O Tenani—p 145
62 Frost Bite of the Feet (Osservazioni sulla cura delle congelazioni gravi dei piedi) A Chiasserini—p 157 (Alterazioni istologiche dei vasi nelle congelazioni) G Cavina—p 164
63 Incarcerated Diaphragmatic Hernia C Simoncelli—p 174
64 Solitary Cyst of the Kidney M Magnini—p 180 To be continued

58 **Determination of Pentose in the Urine**—Testoni states that the hydrolysis test for pentose which he describes is so sensitive that it reveals 0.5 mg of pentose in the urine even in diabetic urine. For the qualitative test he decolors 10 c c of urine by heating with a little blood charcoal and evaporates the filtrate to 5 c c This is mixed with 9 c c of a tepid 0.25 per cent solution of phloroglucin in glacial acetic acid Then he adds 1 c c of concentrated hydrochloric acid and keeps the tube for thirty minutes in water at a constant temperature of 50 C Very soon the characteristic color reaction appears the tint changing to a handsome cherry-red If the urine contains pentoses alone there is no need to evaporate it taking merely 1 c c and adding directly 15 c c. of the phloroglucin solution and 2 c c of the hydrochloric acid and bringing just to the boiling point for a few minutes This test can be made quantitative by preparing a standard solution as above with some pentose instead of urine and comparing the tint

59 **Roentgen Examination of the Wounded**—Masserini concludes this long review of the experiences with Roentgen work for the wounded by warning that too much must not be expected of Roentgen examination The best results are obtained when the radiologist and the physician who had studied the case can work together He declares that every radiologist should have a practical medical experience while every physician should be something of a roentgenologist

60 **Hernia and Defective Teeth and Heart as Affecting Military Service**—Galli quotes from the military regulations of the different belligerent countries showing that hernia loss of teeth and heart disease need not summarily exclude the applicant from military service The French regulations stipulate that exemption is necessary only if mastication is difficult or incomplete from loss or decay of teeth accompanied by softening ulceration and fungosities of the gums not susceptible of being cured by suitable treatment The loss of a large number of teeth with the gums sound *may* serve as the ground for classing the man in the auxiliary service He states that the German regulations as long ago as 1909 contained similar provisions In both France and Germany he adds hernia is not considered a ground for rejection unless the inguinal hernia is very large, irreducible on account of adhesions, or difficult to maintain reduced with the canal much stretched and the anterior abdominal wall weak In regard to heart disease similar views prevail, he relates not only in France and Germany but in Switzerland Russia and England namely, that men with heart disease need not necessarily be excluded from the army He refers to Sir James Mackenzie's 'The Recruit's Heart Memorandum for Medical Examiners' This advocates accepting the recruit if the young man presents no disturbance on the part of the heart during fatiguing test exercises, and if the heart outline is normal, even if he may have impressive objective symptoms such as arrhythmia and murmurs Galli agrees with him except for the restriction that recruits of this type should be assigned *only to the less* strenuous posts 'Time alone will show, when the history of the war comes to be written whether Mackenzie's ultra liberal interpretation is just or not"

61 **Hernia of Brain Tissue**—Tenani's experience with sixteen cases of hernia of brain showed that what he calls hernia of the first degree subsides spontaneously When the hernia is stationary, the opening in the skull is made larger, thus relieving the congestion in the protruding part of the brain and the hernia then subsides, and the brain is freed from its adhesion to parts around In reference to treatment of progressive hernia, he says that the brain seems to stand the loss of substance remarkably well and the operative wound soon heals as a rule, but the patient is left below par both in the physical and psychic sphere emotionally unstable He used various materials for repairing the breach in the skull, any nonabsorbable substance seems to answer the purpose once fixed immovably in place The repair should not be attempted until asepsis can be counted on In prevention of hernia he uses a disk of celluloid fitted smoothly into the gap with a small crescentic incision at one edge permitting the passage of a wick of gauze introduced under the dura The gauze is renewed frequently until there is no further discharge from the dura Then the disk is taken out and the skin sutured over the gap By this means drainage is secured while the brain does not adhere to the smooth surface of the celluloid He never had any septic complications in his cases

62 **Trench Foot.**—The gangrene with trench frostbite seems to be the result of thrombosis of the vessels plus hyperplasia of the intima, an actual proliferating endarteritis and endophlebitis

Riforma Medica, Naples

May 5 XXXIII No 18 pp 477 504

65 *Unfermentable Diet in Gastro Intestinal Dyspepsia G Moruzzi—p 477
66 Traumatic Pseudo Arthritis of the Knee. A. Mori—p 480 To be continued
67 *Paradoxic Oculocardiac Reflex O Cantelli—p 487
68 Present Status of Glycuronuria in Liver Disease L Ferrannini—p 490

65 **Unfermentable Diet**—Moruzzi remarks that a protein diet in acid dyspepsia and a starch diet in alkaline dyspepsia are effectual as far as they go but a third diet is needed for mixed dyspepsias generally of gastric origin The diet should be incapable of fermentation and he says that this condition is realized by a combination of whey and peptone fermented with very active lactic acid bacilli, and then sterilized He gives up to 800 c c a day of this, with from three to five yolks of eggs In four or five days ten or fifteen at most conditions in the digestive tract return to clinically normal As there is no putrefaction or fermentation on this food the inflammatory processes in the intestine die out He gives no further details as to the preparation of this third diet" The principle is merely the utilization of the sterilized products of lactic fermentation

67 **Paradoxic Oculocardiac Reflex.**—Cantelli refers to cases in which the heart beat and pulse are accelerated by pressure on the eyeballs, and this *persists* for some time afterward He discusses the mechanism of this phenomenon and remarks that it indicates *some possibly* still latent deficiency of the cardiovascular apparatus, suggesting necessity for caution in respect to physical and emotional strain

Rivista Critica di Clinica Medica, Florence

May 19 XVIII No 20 pp 221 228

69 *Chronic Primary War Polymyositis with Atrophy B Graziadei—p 221 To be continued

69 **War Polymyositis**—Graziadei reports a few typical cases of this painful affection of the muscles in men who have been exposed to cold and wet on the firing line, even when not in the trenches In one case the first trouble was *in* the knees, but this improved after six weeks in the *hospital* so the man resumed his place at the front, but in two weeks the knees grew painful again as also the muscles of face, neck and trunk, which were rigid and hard, the pains increased at the slightest movements He was unable to chew or get up and there was fever up to 104 F with edema of the feet and eyelids, but the urine seemed to be normal Small hard nodules appeared on the skin but subsided in a

few days and then reappeared During and after this phase of what seemed to be acute febrile rheumatism, intense pains and contraction of the muscular masses rendered painful and difficult any attempt to move them Later they atrophied to a marked degree Gradual improvement set in after a few months The toes were still stiff and painful by the end of the second year but the man is able to get around with a cane, the arms can be moved normally

Prensa Medica Argentina, Buenos Aires

May 10, III, No 34, pp 365 376

70 *Anastomosis between Gallbladder and Stomach in Treatment of Gastric and Duodenal Ulcers P Escudero and E Finochietto —p 365
71 Facilities in Argentina for Climatic Treatment and Prophylaxis of Pulmonary Tuberculosis T Castellano —p 367
72 Acute Febrile Cyclic Pemphigus J C Navarro —p 468
73 *Hemolysins in Spiders' Eggs (Nuevos datos sobre las hemo lisinas de las arañas) B A Houssay —p 370
74 Toxicologic Study of Partonalgia A Buzzo —p 371
75 Electrocoagulation in Treatment of Tumors in the Bladder J Sabatini —p 372 To be continued

70 **Cholecystogastric Fistula in Treatment of Gastric or Duodenal Ulcer** —Escudero and Finochietta have noticed that the persons who benefit by gastro-enterostomy are usually those who had hyperchlorhydria before, but later have hypochlorhydria Their analysis of the cases showed hyperchlorhydria in every case of recurrence of the ulcer They agree with Paterson and others that the flow of bile and pancreatic juice into the stomach, after the gastro-enterostomy, is what modifies conditions so the ulcer can heal On this premise, they diverted bile into the stomach by an anastomosis between the stomach and gallbladder, hoping thus to realize the advantages of a gastro-enterostomy without its drawbacks This operation, they say, respects the gastroduodenal functioning and allows the bile to enter the duodenum by the natural route It merely adds to the previous condition the presence of bile in the stomach during the course of gastric digestion They say the operation is simple and easy, and does not interfere with a later gastro-enterostomy if this is deemed necessary They give an illustration of the technic as they have applied it in two cases of duodenal ulcer Five and a half months have elapsed since in the first case, and there have been no symptoms at any time The gastric acidity has been reduced from 2 25 to 0 46 and the weight increased over 15 pounds in thirty-three days The influx of bile depends on the food, none enters the stomach after drinking water or taking an Ewald test meal, but water and oil or an ordinary meal is followed by the arrival of bile after the first hour Roentgenoscopy shows that the stomach is evacuated in less than six hours

73 **Hemolysins in Spiders' Eggs** —Houssay has found hemolysins in the eggs of three species of Brazilian spiders Other scientists have brought the list up to fourteen The hemolytic action of the species here studied seems to be annulled by raw milk Heating the milk, even to 62 C (143 F) deprives it of this property

Semana Medica, Buenos Aires

April 5, XXIV, No 14, pp 399 430

76 Honors for Dr José Penna R Kraus and others.—p 399 (See The Journal, May 12, 1917, p 1420)
77 Present Status of Chronic Nephritis (Fisio patologia del brightismo) L J Facio —p 411 To be continued
78 Gastrulation in Mammals M Fernandez —p 420
79 Lymphocytosis in Syphilitics Mayer and Gourdy —p 427 Continuation

Siglo Médico, Madrid

May 12, LXIV, No 3309 pp 325 344

80 *Infarcts and Stones in the Kidneys without Symptoms A P Martin —p 325

80 **Symptomless Renal Lithiasis** —Martin relates that a new-born infant was sent to the hospital for an operation for imperforate urethra, as it had voided no urine during its three days of life The child was small but seemed otherwise normal He introduced a grooved sound into the urethra, and a large quantity of "uric sand" escaped through the groove, forming a paste with a drop or so of urine He applied rectal infusion of a solution of sugar by the drop method, and the next day 5 or 6 gm of urine was voided containing uric acid crystals The child nursed well and within two days was voiding apparently normal urine and continued to increase in weight The rise in blood pressure thanks to the injection of the sugar solution, overcame and swept out the uric acid crystals which had evidently been clogging the outlet to one or both kidneys He queries what will be the future fate of infants born with these so-called uric infarcts Some permanent damage may be left when the uric precipitate is extremely abundant as in some of the cases on record It may be the nucleus for stones later Roentgenoscopy is showing that latent, that is, symptomless kidney stones are far from rare, although never suspected until infection becomes installed An instructive case of this is reported A robust young athlete developed profuse suppuration in one kidney as a complication of recent gonorrhea, but there was no fever or hematuria and only extremely slight systemic disturbance Roentgenoscopy revealed fourteen stones, at least, in the kidney They had evidently developed by concretion on infarcts dating from the earliest infancy This was manifest from their movability, etc At the age of 2 and 3 he had voided at one time a dark colored urine, and repeatedly later the urine deposited a whitish gelatinous sediment After the age of 3 the urine had been constantly apparently normal until the gonorrhea started the kidney trouble. Gonococci and colon bacilli were found in the urine.

Russkiy Vrach, Petrograd

XVI No 8, pp 169 192

81 The So Called Functional Treatment of Fractures, from the Orthopedic Standpoint G I Turner —p 169
82 Dissociation of Auricle and Ventricle Functioning with Adams Stokes Disease N I Leporsky —p 176 To be continued
83 *Burns in Children (Ozhogi u dietei) N R Blumenau —p 179 Commenced in No 7, p 158
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85 The Fever Curve in Typhus (O likhoradkie pri sipnom tifie) L. A Silberberg —p 185

83 **Burns in Children** —Blumenau reviews the experiences of eighteen years at a Petrograd hospital with 186 cases of burns in children from 5 months to 13 years old Under 1 year old, 50 per cent of the children succumbed to their burns, but only 20 per cent. at 5 Over 66 per cent of all the fatalities were in the children under 6 Over 43 per cent died in the first twenty-four hours, over 41 per cent within four days, and over 14 per cent from the sixth to the twenty-first day Vomiting was a prominent symptom in 50 per cent of the cases that terminated fatally while it occurred only in 3 6 per cent of the nonfatal cases The temperature was below normal only in 6 cases, these children all died within fifteen hours Over 23 per cent of the total children had convulsions, but the convulsions developed between the second and fourth day in 50 per cent of the cases with convulsions, during the first twenty-four hours only in 13 per cent Albuminuria was extremely rare, and only very slight A fine rash was observed in 2 per cent of the cases by the third to fifth day and a coarse rash in a still smaller percentage, but 12 3 per cent developed an eruption exactly like that of scarlet fever Voinoff had the same in 11 per cent of the 318 cases of burns in children in his service

This scarlet fever eruption developed usually within the first four days in both series In Blumenau's cases the tongue had the characteristic scarlatinal aspect only in 50 per cent Desquamation followed in 66 per cent Fifteen of the children with the eruption suggesting scarlet fever were placed in the scarlet fever ward One succumbed to otitis and mastoid mischief, and 2 to pneumonia the forty-fourth and twenty-eighth days The others recovered, but 2 had a return of the scarlet fever, the fifteenth and sixteenth days The eruption and pharyngitis then lasted about four days, and no desquamation was noticed The burn in these children involved 6 per cent. and 12 per cent of the surface of the body, in the 3 children that died, 35, 30 and 5 per cent In the total 23 children with the eruption of the scarlet fever type vomiting occurred in 17.3 per cent The throat seemed to be normal in 3 of the 25 cases, in 5 there was only slight redness in the others the redness was pronounced The clinical picture of the scarlatinal eruption in these cases was thus that so often described as wound scarlet fever ' Vomoff's experience was quite different The mortality in his [illegible] cases was over 30 per cent , the eruption was intense and lasted sometimes for eight days the tongue and throat were characteristic of scarlet fever and 15 per cent of the children had necrotic sore throat Complications of various kinds such as may accompany scarlet fever were observed in 7.6 per cent In short these children had true scarlet fever They transmitted scarlet fever to others which never occurred in Blumenau's series Blumenau presents further evidence to prove that with wound or burn scarlet fever the germs entering by this unusual route are comparatively nonvirulent but at the same time they serve—like a vaccine—to protect against the more virulent This he says seems to be the only plausible explanation for the nondevelopment of true scarlet fever in the 15 children placed in the scarlet fever ward He urges that children with burns and this scarlatiniform eruption should be isolated in a glass box or separate room and not be sent to the contagious ward unless pronounced symptoms develop

Necropsy was possible only in 16 of the 54 fatal cases among Blumenau's 186 cases It failed to reveal any internal lesions apparently capable alone of causing death and he discusses the various theories that have been advanced to explain the early death after burns and methods of treatment In the first twenty four hours the collapse may prove fatal and this should be combated with camphor caffein and digitalis After the first day the danger is from absorption of poisons from the dead tissues in the wound Saline infusion with 1 per cent sodium bicarbonate in a vein or by the drip method 1 to 4 liters a day is useful Lieber warns against morphin as liable to depress the heart unless the burn involves more than a third of the surface and the outlook is hopeless Some advise the continuous bath to wash away the toxins in the burns but Lieber warns that it may reduce the tonus of the vessels and thus hamper the already suffering heart action To neutralize the methyl guanidin formed in the burn Vogt and Heyde recommended (1915) atropin and an isotonic solution of calcium chlorid cutting away necrotic tissue Schone scrubs with a hard brush and soap under general anesthesia Rovsing also cleans the burned area under general anesthesia using soap water and phenol in alcohol sterilizing the surrounding skin with mercuric chlorid Then he applies a layer of rubber tissue projecting 0.5 cm beyond the edges of the burned area and over this medicated gauze then absorbent gauze and a bandage In the 60 cases Rovsing has reported healing was prompt and without contractures Blumenau does not specify the measures that were used in treatment in the 186 cases he here analyzes

84 **Capacity for Digestion of Different Kinds of Food After Gastro-Enterostomy**—The experiments were made on dogs and some of the metabolic findings are tabulated in this preliminary communication

Actae Scholae Medicinalis Universitatis Imp, Kioto

I No IV pp 413-489 German edition

86 *Action of Inosit and Similar Bodies on the Elimination of Glucuronic Acid Y Sasaki —p 413
87 *Elimination of Aromatic Oxyacids in Different Diseases especially in Nephritis S Hara —p 425
88 Asymmetrical Cleavage of Racemic Polypeptids by Killed Bacteria L T Mito —p 433
89 *Asymmetric Cleavage of Racemic Tyrosin by Bacilli M Tsudji —p 439
90 Biologic Production of d Tyrosin M Tsudji —p 439
91 *Thymotoxic Serum M Ogata —p 449
92 The Principles of the Independent Function and of the Reciprocal Influence of Every Part of the Common Visual Field G Kuroda —p 473 In English

86 **Action of Inosite and Similar Aromatic Bodies on the Animal Organism.**—Sasaki reports experimental research on rabbits and mice to determine the influence on the elimination of the ethereal sulphates from feeding with inosite, phloroglucite cis chinite and cyclohexanol all bodies of the oxyhydro aromatic type

87 **Elimination of Aromatic Oxyacids in Nephritis**—The metabolic findings in forty-five patients including twenty-one with nephritis, and in thirteen healthy persons are given in a four page table with special reference to the elimination of the aromatic oxyacids In six of the nephritis cases the elimination was within normal range but in most of the others the reduction below the normal figure was most striking The reduction in the elimination of the oxyacids in severe nephritis does not depend on the amount of urine voided There is evidently retention of these substances in the blood giving warning of impending uremia

89 **Cleavage of Tyrosin by Bacteria**—The bacteria used in the tests with racemic tyrosin were the proteus and the subtilis

91 **Thymotoxic Serum**—Ogata injected rabbits with an emulsion of dog thymus and thus obtained a thymotoxic serum which he tested on young dogs from ten to sixty days old Control animals were injected in the same way with normal rabbit serum The thymotoxic serum was injected subcutaneously during fifteen days Photographs of the thymus from the dogs afterward show a remarkable difference between the experimental animal and the control the thymus weighing only 0.75 gm in the former and 3.8 gm in the control in one pair The proportion to the body weight was 1:1560 in the control animal 1:376 In another group the thymus weighed 1.3 gm and 10.2 gm in the control the proportionate weight being 1:1760, 1:313 in the control In addition to the atrophy and dwindling of the thymus gland the experimental animals showed smaller and frailer bones than the controls and their bones contained considerably less calcium and phosphates than in the controls The serum of rabbits injected with dog ovarian tissue failed to display any action on the thymus gland The thymus toxic serum seems thus to be strictly specific.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

April 21 I No 16 pp 1257-1336

93 Infant Welfare Work in the Netherlands (Zuigelingenbescherming) C van Rijnberk —p 1262
94 War Surgery (Over oorlog chirurgie) D R van der Goot —p 1266
95 *Causes of Nervous Affections (Oorzaken van zenuwziekten) J W Langelaan —p 1280
96 Case of Otogenous Pyemia without Sinus Thrombosis Recovery C Huyer —p 1285

93 **Infant Mortality in the Netherlands**—Van Rijnberk cites statistics to the effect that the infant mortality in the Netherlands for the first ten years of the century was 114 per thousand born living The country thus stands fifth on the list only Norway Sweden Ireland Denmark and Scotland showing a lesser mortality The northern provinces of the Netherlands have the lowest infant mortality, only 61.5 while in the southern region it was 131.5 per thousand By 1910 the total infant mortality had dropped to 104 per thousand and it has declined since to 84.5 in 1916 The mortality is higher in towns of 5,000 or less averaging 95.6, from 5,000 to 20,000 89.3, from 20,000 to 50,000, 82.1, from 50,000 to 100,000 86.2 and over 100,000, only 62.9 per thousand These figures show he reiterates that better hygienic conditions in the smaller towns and rural districts will have a wonderful effect on infant mortality, as, other things being equal the crowded cities would have a higher mortality Breast feeding is not so universal in the Netherlands as is desirable possibly owing to the abundance of cow's milk

His figures are taken from the Year Book of the Infant Welfare Association, and this concludes its report with an appeal to have girls taught in the public schools the care of infants Girls now marry and rear children without the slightest idea how they should be brought up They experiment and practice on their first child, and the little victim often succumbs while the mother is learning how to care for it "And for many mothers, alas, it takes more than one child before they learn' Many dismiss the idea as ultrarevolutionary, saying it is not necessary, as the grandmother and neighbor women show the girl mother how and what to do But their counsel is more than likely to be ill advised and perpetuate prejudices and harmful practices, so that the baby has an unnecessarily hard time of it the first year Rijnberk comments that the tendency to have the school supplant the family is a dangerous one, but it is certain that it would be better to teach the girls of the working classes less history and geography, which is only of indirect benefit, and teach them how to care for infants This would be a direct practical aid to them in later life, for their own or others' infants, and such a course should be compulsory in the upper grades of the public schools

95 **Causes of Nervous Affections**—Langelaan states that 56 per cent were women in his 1,112 cases of disease of the nervous system (Amsterdam) Of the male patients, 30 per cent had syphilis in the antecedents, and 15 per cent of the women Tabes and general paralysis seem to run a milder course in women, and affect more the type of a recurring psychosis Overwork seemed to be the cause of the nervous affection in 15 per cent. of the women and in 4 per cent of the men This is most common in girls working too hard in school, in young employed women, and in women approaching the menopause with the care of a large family He has noticed that women who worked at some time in a factory or shop are more liable to break down than others under family and household cares later "This testifies" he remarks, "to the persisting evil effect of industrial occupation for women" Another impression he has derived from his experiences is that this tendency in women to nervous breakdown under overwork is connected in some way with the thyroid gland This gland often shows an inherited inferiority, he says, in the blonde portion of the populace. Alcoholism or tuberculosis in the parents seems to be responsible for this In the cases in which no evidences of abnormal thyroid functioning are apparent, the women were of a darker complexion as a rule There were evidences of thyroid upset in 18 per cent of his female patients, and they were probable in another 7 per cent Next to syphilis and thyroid upset, alcohol is the main factor in nervous affections Among other bases for this assertion is the enormous consumption of alcohol in the country The revenue from the tax on spirits in 1916 was 28 millions Inherited syphilis kills more children early in life The evil consequences of alcoholism in the parents do not manifest themselves usually until about the age of puberty, and then mostly in the psychic sphere The judges in the police courts see more of the consequences of inherited alcohol taints than physicians

Hospitalstidende, Copenhagen

May 16, LX, No 20, pp 473 496

97 *Artificial Heliotherapy in Lupus and Surgical Tuberculosis A Reyn and N P Ernst —p 473 Commenced in No 19, p 449

97 **Artificial Heliotherapy in Lupus and Surgical Tuberculosis**—Reyn and Ernst have been giving electric light baths in lupus and bone and joint tuberculosis since early in 1913, and here report encouraging results in several hundred cases They found the carbon arc light best for the purpose, and reiterate that it seems to be able to accomplish alone, without climatic factors, as much as the sunlight in a mountain climate It is an invaluable aid in the treatment of lupus The work was done at the Finsen Light Institute at Copenhagen, and the lupus was often of many years' standing, rebellious to all other measures The entire body was exposed to the rays These general light baths are thus entirely different from the Finsen treatment which seeks to focus as powerful rays as possible on a small area The aim with the general bath is to have the body absorb as much of the chemical rays as possible The exposures are for one quarter to half an hour at first, gradually lengthening them in the course of a week or two to two and a half hours This was he limit for the exposures Among the 156 lupus patients all were old, rebellious cases except 30 who began treatment for the first time with these general baths to supplement the local Finsen treatment The results were better in this latter group The course lasted from four to eight months It seems best to give the general light baths every second day, with a powerful current In the tuberculous cases, some did better with a current of 20 amperes, others with 75 amperes The most striking success was obtained with osteitis and arthritis in many cases the joint process healed without impairment of function Nine plates of photographs show the "before and after" aspects of the lesions Fourteen different classes of tuberculous lesions were treated, and the results are tabulated The experiences here reported emphasize that the chemical rays are the effectual element in Rollier's heliotherapy, and not the mountain climate, as equally good results were obtained with the carbon arc light The cure was complete and less time was required, naturally, the earlier the treatment was applied

They emphasize particularly that these results were obtained on outpatients, nearly all adults, the tuberculous process usually of long standing They came for their light baths, but otherwise were under the same conditions of environment and occupation as before treatment Reyn and Ernst also insist that this treatment must be applied by persons with surgical training and insight, knowing when operative aid will promote the healing, and when to refrain from interference Experiences with the mercury vapor quartz lamp, the so-called "mountain sunlight" lamp, proved it less effectual than the carbon arc light. The latter yields rays of all kinds, while the mercury vapor lamp gives off only the short-waved rays with weak penetrating power The skin tans under the arc light as under sunlight The details of twenty-one cases with fistula are given in full

Hygiea, Stockholm

April 30, LXXIX, No 8, pp 369 416

98 Henschen's Theory of Pulsus Bigeminus Is Unphysiologic E Zander —p 369

99 *Neutral Solution of Chlorinated Soda in Treatment of Chronic Suppuration A Troell —p 384

99 **Hypochlorite Treatment of Suppuration**—Troell describes his experiences with the Carrel-Dakin technic in treatment of forty-five wounded soldiers in the Swedish military hospital at Vienna When conditions permitted its application in a thorough manner, the results were highly satisfactory

Ugeskrift for Læger, Copenhagen

May 3, LXXIX, No 18 pp 685 726

100 Chronic Habitual Constipation from the Clinical and Roentgenologic Standpoint IV T E H Thaysen —p 685 Conclusion

101 *Exacerbations of Chronic Disease from the Standpoint of Hospitalization K Lundh —p 695

102 *Drug Eruption in Infant. S Lomholt —p 699

101 **Exacerbations of Chronic Affections and Hospitalization**—*The boy of 15 had been in the hospital five different* times on account of febrile exacerbations of chronic bronchitis with cough, and mitral insufficiency There was also situs inversus Tubercle bacilli were found in the sputum three times in the course of a few months Lundh takes this case as his text to expatiate on the advantages of treating such chronic patients under supervision at home, or in some outdoor colony or other inexpensive sanatorium The lad had spent 703 days in all in different hospitals, thus costing the state 3,027 crowns Looking over the local hospital records has shown that eighty-nine similar cases, all with more or less earning capacity, have been given 38,569 days of hospital treatment The same or better results could have been attained at the outdoor colony, the patients going at night with hygienic supervision of the home, while the expense would have been comparatively trivial

102 **Drug Eruption in Infant.**—The infant was 18 months old A 10 per cent mercurial salve was applied for two weeks to patches of eczema back of the ears Then the dermatitis rapidly became universal and severe nephritis developed, with high fever, 20 per thousand albuminuria, dyspnea and diarrhea The latter was kept up with compound licorice powder, half a teaspoonful three times a day, and improvement gradually followed The temperature was normal by the tenth day and recovery then was soon apparently complete This laxative was given the preference because it contains sulphur This may combine with the mercurial compounds in the bowel to form an insoluble salt Sulphur alone would probably have been too heroic for the infant

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol LXIX No 2 Chicago Illinois July 14, 1917

SPLENECTOMY IN THE ANEMIAS

AND OTHER BLOOD STATES ASSOCIATED WITH ENLARGEMENT OF SPLEEN AND LIVER*

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The spleen has a mysterious function In the embryo it is the manufacturer of white blood cells This function apparently ceases before birth After birth the spleen renovates the red blood cells When diseased it reverts to its primitive function, and lawlessly produces an enormous proliferation of the embryonic white cells or a wholesale destruction of the red corpuscles, with great increase in its own size The spleen is believed to produce a hemolytic ferment which has been interestingly studied by McNee to exercise a phagocytic function (Kolliker, 1847) and to perform the act of mechanical straining of worn out blood cells especially, as well as bacteria protozoa and certain toxic substances It directs a considerable portion of the blood to the liver for further destruction of noxa and final metabolism of nutritive materials It is well known that it enlarges during digestion and contracts after that function is completed While a ductless gland, it does not appear to have an important internal secretion, but is powerfully acted on by the products of the suprarenal gland contracting markedly under its administration This is probably due to its blood and pulp composition

In its duty as a filter it sometimes becomes overwhelmed with the infectious agent of general diseases, such as typhoid fever, malaria, syphilis and tuberculosis Splenic enlargement so resulting may require operation under exceptional circumstances when it is unyielding to ordinary management

A large spleen often results from toxic causes It is commonly associated with anemia and with a secondary cirrhosis of the liver Variations in this association results in such syndromes as Banti's, Gaucher's and von Jaksch's Splenic anemia is perhaps the most frequent pathologic process participated in by the spleen, except those enlargements associated with such blood dyscrasias as leukemia and pernicious anemia Both have a considerable incidence and an almost invariable fatality

Splenic anemia is presumably due to the filtration from the blood of certain toxic substances by the spleen which, when passed on to the liver, produce cirrhosis There are many varieties, but all have an enlargement of the spleen and some grade of anemia The enlargement seems to confer an abnormal potentiality for the destruction of the red blood cells

Splenic anemia is a primary disease of the spleen of unknown origin There are progressive enlargement, attacks of anemia, a tendency to hemorrhage, and in the Banti stage a secondary cirrhosis of the liver with jaundice and ascites Following splenectomy there is usually complete recovery showing that the spleen itself, if not initiating, is the essential seat of the disease The restoration seems permanent One patient was well after the lapse of fifteen years (Turk)

All splenic tumors, with chronic anemia, might be broadly, though not accurately, included under splenic anemia, practically all such cases have been cured by removal of the spleen Miller speaks of the impossibility of explaining why in splenic anemia there is anemia without icterus, in Hanot's cirrhosis there is icterus without anemia, and in hemolytic icterus there are both icterus and anemia, and why all are so closely related

Splenectomy has been performed in only a few instances of the adult form of splenic anemia, occurring in the first decade of life Giffin[1] reports one case in which operation was performed by Balfour and only five others collected from the literature I have reported elsewhere an additional case of the adult form of splenic anemia (Banti's disease) in a boy, aged 8, cured by splenectomy[2]

It was inaugurated with severe gastric hemorrhage, reducing the hemoglobin to 11 per cent and red cells to less than a million, followed in a few weeks by splenomegaly and ascites After preliminary transfusion of whole blood the splenectomy was safely concluded with entire and complete recovery

Gaucher's spleen is often associated with a huge liver The process begins in infancy or childhood, is extremely chronic, and is characterized by the peculiar large pale round cells with vacuolated protoplasm If operation is undertaken before endotheliomatous growths appear secondarily in the liver and the other organs, cures have been cited by Herzog and Mayo

Von Jaksch's disease, the splenic anemia of infancy, might be possibly considered as a form of adult splenic anemia, in spite of the high leukocytosis and lymphocytosis, as these, according to Giffin, may be the result of a peculiar reaction of the infant's blood Splenectomy is indicated in the graver forms that are not amenable to medical treatment There are four operative cases in the literature up to the end of 1915[1] All the patients survived and were either cured entirely or greatly improved

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* Chairman's address read before the Section on Surgery General and Abdominal at the Sixty Eighth Annual Session of the American Medical Association New York June, 1917

[1] Giffin, H Z Splenectomy for Splenic Anemia in Childhood for the Splenic Anemia of Infancy Ann Surg 1915 **62**, 676

[2] Haggard W D Tennessee State Med Jour to be published

What relation does the rather constant enlargement of the spleen bear to hepatic cirrhosis? The beneficial results in the few cases in which splenectomy has been performed might seem to point to a certain relationship that may give an indication for the operation in certain well studied cases

Gastric hemorrhage, of unknown origin, instead of always arising from ulcer, has been estimated by Balfour[3] to be the result of splenic anemia in many cases He reports one strikingly suggestive case in which several fruitless operations on the stomach had been performed for grave recurrent gastric hemorrhage, the patient was cured by splenectomy after operation had revealed an enlarged spleen

Pernicious anemia has been characterized as cancer of the red blood tissue, as leukemia has been described as cancer of the white blood tissue in its riotous profusion and reckless proliferation It is evidently of infectious origin The idiopathic variety was a fabrication, it is so uniformly fatal under all forms of treatment that Eppinger suggested splenectomy on account of the decreased hemolysis following the removal of the spleen He thinks the hemolysis occurs in the spleen pulp sinuses, the blood being diverted there on account of thickening of the obliterated central artery Although no permanent and definite cure has been made, many patients have been greatly benefited, and it is not impossible that if the operation could be undertaken in the early stage of the disease, before bone-marrow exhaustion occurs, some permanent cures may be effected A persistently low polymorphonuclear percentage would indicate bone-marrow exhaustion, whereas, a high percentage of reticulated cells with perhaps the Jolly bodies point to increased activity of the bone-marrow Splenectomy is the greatest stimulant to bone-marrow, but it can exert this stimulation but once Repeated transfusion before and after operation is the next best therapeutic measure As the spleen is only an aggregation of lymph glands, and as in addition to the bone-marrow there are many isolated glands around the peritoneal cavity, so-called hemolymph glands, it is not improbable that the explanation of the continued blood destruction after splenectomy in pernicious anemia may be due to the continued and vicarious activity of these glands which have been stimulated to this pernicious destruction of blood cells After splenectomy the spleen is seen to be crowded with phagocytes and red cells in various stages of destruction, although there is no particular cellular pathologic condition in the spleen The trouble is rather a perverted chemistry or physiology

The grave anemias, although presumably of splenic origin, may not only be fathered by the streptococcus, but by the plasmodium, tubercle bacillus, protozoa and other parasites As has been pertinently said, "If the spleen is the mother of pernicious anemia there must be many fathers"

Schneider[4] has ingeniously demonstrated that these blood-derived pigments can be obtained from the duodenum by tubage and the quantity estimated by spectroscopic analysis

In the hemolytic type of anemia, the index of these pigments is increased, and hence these patients are more suitable for splenectomy He calls this the "hematopoietic-hemolytic index" It appears that in secondary anemia, carcinoma, chronic sepsis, etc, due to enteric bleeding, this H-H index is low If blood destruction is great, as evidenced by a high index in the duodenal contents and yet the blood picture is good on account of the ability of the bone marrow to keep up a fair blood supply, splenectomy is followed by a considerable gain, indicating that removal of the spleen does prevent a blood destruction and perhaps allow the bone marrow to supply the deficiency This is confirmed by a striking reduction in the duodenal blood-derived values after splenectomy Schneider[5] concludes that

> Splenectomy apparently, immediately and permanently reduces the excessive blood-derived pigments of pathologic hemolysis to a normal level There is no proof that a recurrence of a pernicious blood and clinical picture after splenectomy is due to a reestablishment of excessive blood destruction

Regarding advanced cases of pernicious anemia as an ultimate exhaustion of the bone marrow, although originally a hemolytic process, an estimation of the H-H index of Schneider would allow us to select the favorable cases for splenectomy, as evidenced by the high index of this group Since some cases of secondary anemia from alimentary hemorrhages imitate closely a pernicious anemia, this test will definitely rule out that group by showing a normal or low index of the pigments

Percy[6] thus epitomizes the treatment of pernicious anemia

> Multiple massive transfusion of whole blood, eradication of all local foci of infection present, laparotomy for the removal of the spleen, and the other tissues that show evidence of chronic infection is necessary

The best results seem to have been obtained in persons below 50 who have had the disease less than a year in whom the blood picture is fairly good and the spleen is moderately enlarged It has been pretty well determined even by the most ardent advocates that mental, cerebral and spinal cord symptoms are distinct contraindications to splenectomy, and it should be added that the presence of an aplastic bone marrow is equally forbidding If the hemoglobin is below 35 per cent and the red blood cells less than 1,500,000, operation should not be undertaken When the anemia is marked, three or four transfusions should be done as a preliminary

In the Mayo clinic there were thirty-nine splenectomies for pernicious anemia with three deaths, 7 7 per cent In the last twenty-nine cases there were no deaths Krumbhaar,[7] after a critical study of 153 cases in which splenectomy was performed for pernicious anemia, concludes that

> On account of the improvement that follows splenectomy, it would appear to be not only justifiable, but in many cases an advisable procedure, but in no case should a cure be promised or the operation undertaken except under the most favorable conditions

Hemolytic jaundice is the most heartening of all the conditions of blood dyscrasia that are benefited or cured by splenectomy The jaundice begins to pale almost immediately and in a few weeks the icterus of many years has faded away forever It seems like a feat of legerdemain, and it was looked on as incurable until 1911, in which year Micheli performed the first operation

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[3] Balfour, D C Splenectomy for Repeated Gastro-Intestinal Hemorrhages, Am Surg, 1916, 64

[4] Schneider, J P The Hematopoietic Hemolytic Index A Determination Helpful in the Differential Diagnosis of Types of Pernicious Anemia Amenable to Cure by Splenectomy, Journal Lancet, 1917, 37, No 4

[5] Schneider, J P Further Quantitative Study of Duodenal Blood Derived Pigments, Arch Int Med, January, 1917, p 156

[6] Percy Surg Gynec and Obst, May, 1917, p 554

[7] Krumbhaar, E B Late Results of Splenectomy in Pernicious Anemia A Statistical and Critical Review, The Journal A M A, Sept 2, 1916, p 723

The disease is not uncommon Rovsing[8] says that fifty cases have been observed in Denmark The acquired form which usually makes its appearance in the second decade is much more fatal than the familial which may last indefinitely with little or no inconvenience other than the skin discoloration These patients are more icteric than sick with the acquired form they are more sick than icteric according to Chaufford In addition to the splenomegaly there are anemia and increase in reticulated cells showing a partial exhaustion of the hemopoietic system There is a marked fragility of the red cells by the test of Chaufford and Widal, according to the Eppinger technic[9] Their mere fragility causes their easier hemolysis in the spleen May it not be as suggested by Meltzer, that as the blood flows through the irregular alveolar structure of the spleen, the red cells rendered fragile by some unknown agency encountering the jarring ridges and sustaining innumerable shocks are broken up mechanically and called to give up some of their hemoglobin? With the jaundice there is no bradycardia, itching or petechiae There is bile in the stools bile in the blood but no bile in the urine whereas urobilin is present in the urine but not in the blood Bilirubin is found in the blood serum, and can be measured[10]

The pigmented portion of the hemoglobin molecule when split up by the spleen is thrown off by the liver as bilirubin In the intestine this is changed into urobilin and as such is passed out by the kidneys When the pigment escapes extrusion by the liver, deposition in the tissues causes jaundice, just as in pernicious anemia the lemon tinge comes from the pigment of slaughtered red cells

May not certain cases of so-called Hanot's hypertrophic cirrhosis in young life that lasts a number of years be in reality acquired hemolytic jaundice, as suggested by Mayo? The obtaining of the H-H index and the test for the fragility of the red cells would be helpful While true Hanot s cirrhosis is rare, chronic, and generally regarded as incurable, splenectomy may be indicated

In forty-eight cases of splenectomy, reports of which were collected by Elliott and Kanavel,[9] for hemolytic jaundice, there were only two deaths, a mortality of 4 1 per cent These patients should not be operated on during an exacerbation characterized by pain, tenderness and enlargement over the liver and spleen, with increase in jaundice and temperature This is the typical acholuric crisis, and is often misinterpreted as malaria

Splenomyelogenous leukemia, as ordinarily encountered, is notoriously inappropriate for splenectomy, but when the full limit of improvement after Roentgen or radium treatment has been obtained and before recrudescence occurs, Mayo thinks splenectomy may be considered in selected cases

Likewise syphilitic spleen, although quite uniformly amenable to intensive antisyphilitic treatment, may be wholly intractable to the most active and persistent measures Four such cases are reported from the Rochester clinic, and were promptly cured by splenectomy and continuation of treatment that was formerly unavailing There are also reported from the same clinic 135 splenectomies with twelve deaths, 8 5 per cent, for various maladies of the spleen, with abnormal blood states and splenomegaly[11] Attention is drawn to the fact that the spleen must be enlarged many times to be really palpable In this connection it must be remembered that splenic enlargements always grow forward, they never produce fulness in the loin

All chronically enlarged spleens which are symptom-producing should be brought into court — the court of exhaustive investigation — to show cause why they should not be removed We are in danger of rather indiscriminate operation on this organ by those who may be impressed with the glamour of this somewhat impressive operation but who are not properly equipped to study each case in the most elaborate and exacting way

SANITATION IN THE TRENCHES

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From professional friends in the medical centers who are most in touch with the younger physicians I learn that there is a great demand among the latter for medicomilitary literature concerning the present war Naturally, planning to take up at an early date the duties of what they are beginning to realize is practically a specialty to which our medical colleges have heretofore given no attention, as intelligent professional men and as patriotic citizens they are eager for information that will enable them competently to fill the military offices to which they shortly expect appointment, and to "do their bit," however small, in an adequate and self-satisfying way

At present, unfortunately, there is a great lack of literature along these lines Physicians abroad, both at home and afield, are all more or less engaged in the work of the war and have had little time to write, and what has been written, owing to evident difficulties in the transportation of mail, is not always received on this side of the water Fortunately for our present purposes, this matter is not vital I have been informed by competent observers from the western front that the German sanitary methods and results are far behind those of the British and French, indeed, there seems to be some evidence that the medical department of the German army, owing probably to the use of antiquated administrative methods, practically broke down in the early part of the war

Realizing this literary dearth, the medical section of the Advisory Committee of National Defense has patriotically decided to have published at as early a date as practicable a series of pocket handbooks designed for easy use in the field, and treating of those subjects that are most essential in this connection The series will consist of English manuals, revised and up to date, French translations, and short monographs on special subjects, the latter written mostly by some of our own physicians and surgeons who have already seen service abroad This plan, when effectuated, will no doubt take care of one of the most important phases of the matter of medical preparedness for the war

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[8] Rovsing Tr XI North Surg Cong July 1916
[9] Elliott and Kanavel Surg Gynec. and Obst. 1915 **21,** 26
[10] Hooper and Whipple Am Jour Physiol 1916 **40,** 332
[11] Miller J L Splenectomy in Splenic Anemia Hemolytic Icterus and Hanot s Cirrhosis The Journal A M A Sept. 2 1916 p 727

Pending the publication of these books, which will probably require several months for completion, the want can be partially filled by short journal articles on some of the more important subjects Of these the most urgent is that of camp sanitation I regret extremely that none of our many competent army sanitarians has taken up this task It may perhaps be a case of "angels fearing to tread," owing to the dry nature of the subject and the great difficulty of making its treatment interesting However, at the risk of subjecting myself to this criticism, I have felt constrained, mainly because of the reticence of more able pens, to enter the breach Elsewhere[1] I have dealt briefly with what may be called the general principles of military hygiene, which apply in this war just as forcibly as in previous ones This paper is simply an effort to bring the matter up to date by a short description of the particular methods that the peculiar environment abroad has developed in modern trench warfare I have been greatly aided in this design by having had the good fortune to hear the interesting lectures of Colonel Goodwin of the British mission to the United States covering this subject, and by the recent issue from the press of a revised American edition of Major Lelean's "Sanitation in War"[2] Anything that may prove of value in this paper is really due to these two authors In fact, I make no claim whatever to originality, unless, indeed, it may be originality to endeavor to arouse interest in a very dry subject or to try to pick the essentials of the subject out of a large mass of details This would be better, indeed, than originality for our present purposes It would be a big start toward the solution of a problem that has always caused us serious trouble in our previous wars, leading to scandals and investigating committees, and "the tumult and the shouting" of popular disapproval and newspaper notoriety In spite of much natural optimism I have, however, little hope of accomplishing the end aimed at, for are there not already in the air the mutterings of approaching storms, and have not the dreaded criticisms in fact already begun? For my part, I merely feel the "call" to expound the doctrine as it has been revealed to me

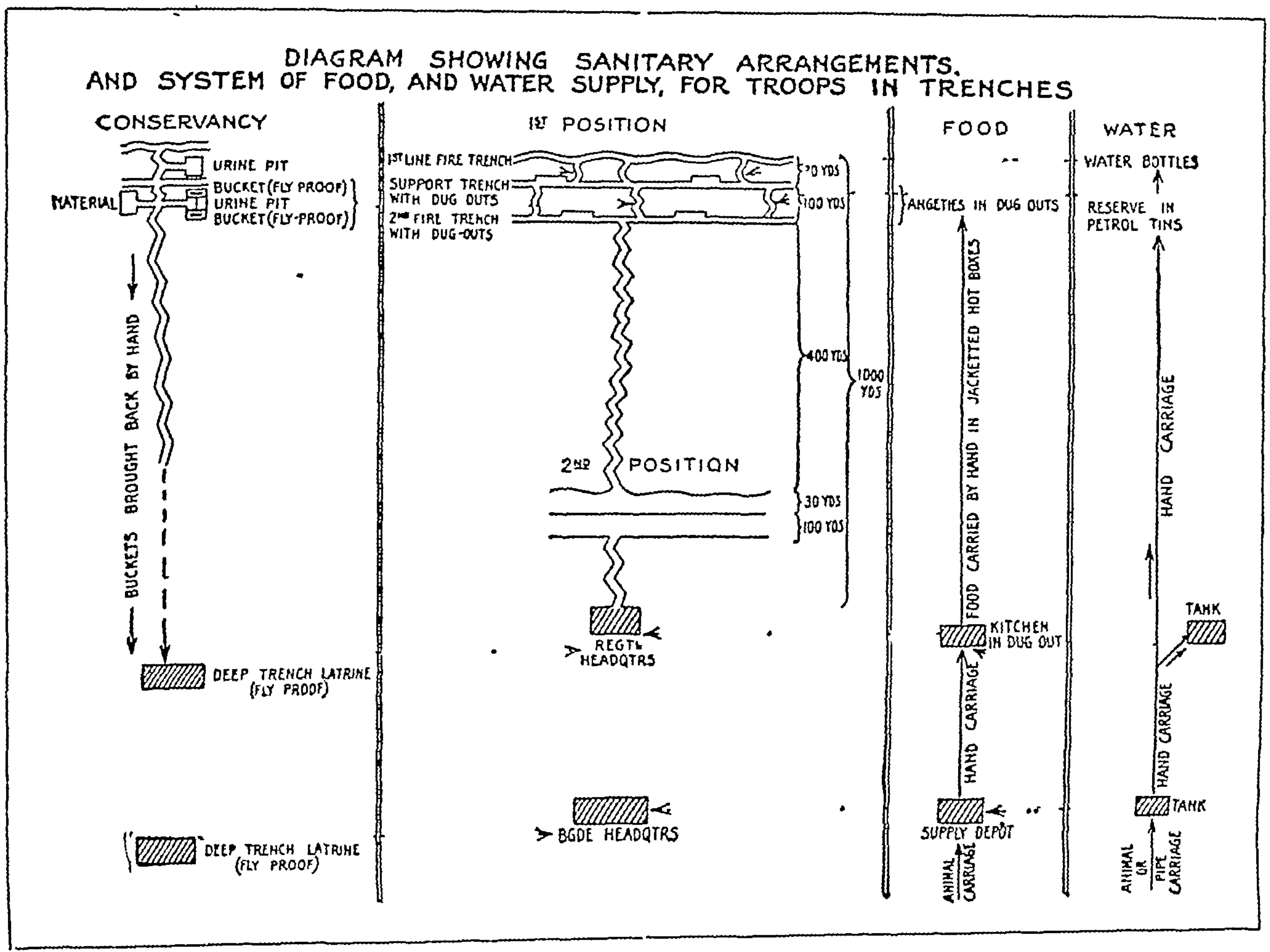

Fig 1—Plan of arrangements for food, water, and the handling of excreta

The French ideas on field sanitation have been ably and interestingly presented by Andre Tournade in "La pratique de l'hygiène en campagne" (1916) However, I do not find in this work what I consider any special improvements on the British methods herein outlined

Major Vedder of the Army Medical Corps has prepared a little handbook entitled "Sanitation for Medical Officers" that will be published at an early date[3] This with Lelean's excellent book, and, for reference purposes, the last (second) edition of Havard's "Military Hygiene," will cover, in my opinion, all the literature on sanitation necessary for the physician in the field in the coming war Short orders and circulars on special subjects are issued from time to time by the War Department, and these will serve to keep one entirely up to date along these lines

To take up the consideration of our subject In the area behind the front there has been no particular departure from our old established sanitary methods, the general principles indeed remain the same in all war areas In general hospitals and at the base these being usually situated in towns of some size, systems of water carriage and modern sewage disposal make our sanitary labors light Fixed incinerators for general refuse are easily established and maintained

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[1] McCulloch, C C Med Rec, New York, June 2, 1917

[2] I am indebted to the extreme courtesy of Messrs P Blakiston s Son & Co of Philadelphia for permission to use the illustrations accompanying this article

[3] Under the authority of the Surgeon General of the Army, and of the Council of National Defense

In case no such systems exist they are installed as necessary The simple range style of water closet, which was used with excellent results for the workmen on the Panama canal offers an easy solution of this particular problem and the same arrangement is applicable to permanent camps This device is, in effect, an iron trough with water and sewer connections that flushes itself automatically at regular intervals Its chief advantage is in its economical installation and operation as compared with the customary water closet fixtures

In semipermanent and large standing camps when it is impracticable to install sewerage systems, it has been found by experience in our army that the deep trench latrine system with fly-proof box covers in connection with improvised incinerators for refuse, if adequately administered can be made to meet the sanitary situation satisfactorily The urine soakage pit, described below, makes a desirable addition to this plan Another improvement in connection with latrines is the use of a barrel, conveniently situated, containing cresol solution for hand disinfection, and provided with a conspicuous label directing that the men wash their hands after using the sink

This seems a good place to state that the only really safe and effective way of administering these field latrines is to have a sentry posted over them whose duty it is to look out for the details of their operation, particularly with reference to the fly-proofing

In the European system of billeting troops in villages, it is customary to make the best of existing facilities The most common arrangement is that which we found in Cuba in 1898, that is, cess pits under the individual houses, which are pumped out from time to time by some form of suction apparatus

It goes without saying that all our field methods, and in particular those concerned with conservancy, require for the accomplishment of real results the strictest sanitary supervision and inspection

Experience has shown that at the front proper certain modifications of our usual conservancy plans are advisable, which are in one way a reversion to earlier and discarded methods, although in others they conform much better to the local conditions The essential thing is that with care we get results, the "acid test" of the success of any kind of campaign

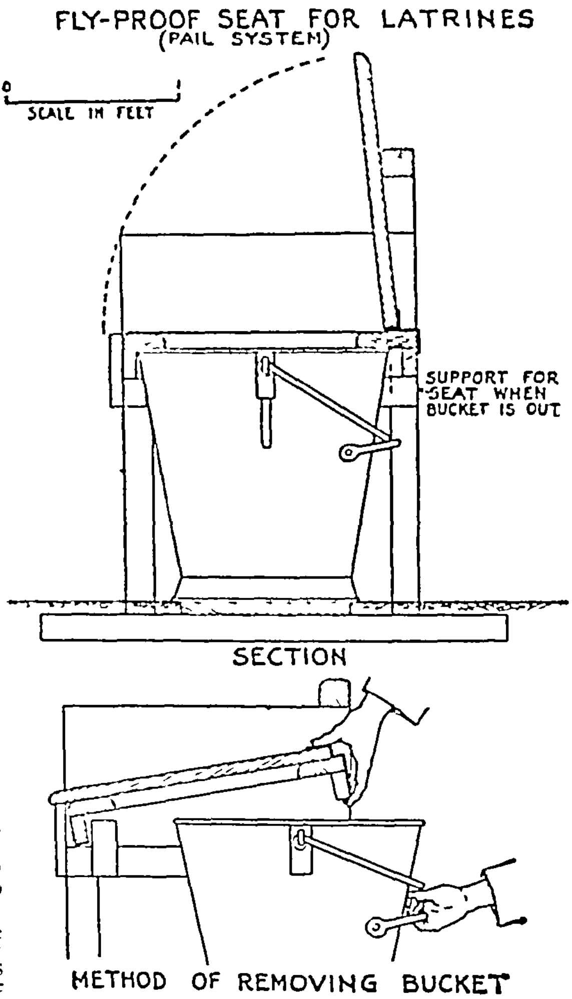
FLY-PROOF SEAT FOR LATRINES
(PAIL SYSTEM)
0
1
SCALE IN FEET
SUPPORT FOR SEAT WHEN BUCKET IS OUT
SECTION
METHOD OF REMOVING BUCKET

Fig 2 —Fly proof container for latrine pail

The vital things in military sanitation are (1) food, (2) water, (3) conservancy, (4) personal habits, and (5) the prevention of special diseases

I THE FOOD SUPPLY

One of the most noticeable developments of the European war in this connection has been the increased vogue of the traveling kitchen or field cooker in the zone of advance According to Lelean, "that now in use is of the 'heat retaining' type which gives en route no smoke which might draw the enemy's fire It consists of ovens and hot-jacketed boilers arranged around a central furnace, all contained in the body of the wagon The limber contains hot-jacketed receptacles, compartments for rations utensils, food, etc It can be detached from the body and, being drawn by one horse, is used for food distribution while the body continues cooking The whole is drawn by two horses, weighs 24 hundredweight, and cooks for 250 men and their officers" On the march it travels with the first line of transport From these, or from improvised dugouts (Fig 1) conveniently situated, food is carried by hand in jacketed boxes and covered tins, through the communication trenches to the troops at the front

A lesson taught us by experience in the Spanish and Boer wars, as well as by the discoveries of modern bacteriology, is the importance, from a hygienic standpoint, of avoiding "carriers" in any work that concerns the preparation and distribution of food The medical history of all men detailed into company kitchens should therefore be investigated, coupled with a careful examination of their actual physical condition Much sickness, especially the intestinal varieties of disease, may often be avoided in this way

It has been found abroad that our former plan of screening entire kitchens can be improved on by substituting the screening of the food itself, the fly nuisance being better controlled in actual practice in the latter way Screened cupboards or safes are used for meat, bread, jam, opened tins or other foods that attract flies, and eating utensils are kept covered Simple muslin squares, weighted at the corners, can be used for much of this work Covered barrels or tins are employed for the bestowal of refuse, previous to incineration

Grease in the sullage water resulting from cooking processes is often quite a nuisance, and a simple method of getting rid of it in camp has been devised in the form of a sort of grease trap A box is filled to a depth of several inches with clean sand, and a vertical partition placed in the middle which dips down at its lower edge for a couple of inches into the sand, making two compartments The sullage introduced into one side filters through into the other under the partition, leaving most of the grease behind The effluent is handled as described below for urine The process works better if gross particles are first removed from the water by running it through a kerosene tin loosely filled with hay The filtering materials are renewed as required when they become clogged

II WATER SUPPLIES

A glance at the diagram (Fig 1) will show the method of supplying drinking water to the troops in the trenches Water tanks are set up at distances of 1,000 yards or more from the first line trenches, obtaining their supplies from pipes when such a system is available, or otherwise from horse-drawn water carts The water in the tanks is, when necessary, sterilized by the hypochlorite process, which seems to act as a bactericide by oxidation with oxygen liberated from the hypochlorite rather than by free chlorin One part of available chlorin per million acting for half an hour is an effective dose, and this is supplied by 2 gm of bleaching powder to the ordinary water cart containing 110 gallons The process requires supervision and examination of the chemical from time to time by titration methods to see that it has not lost its strength From the tanks the water is carried in kerosene tins by hand through the communicating trenches, and stored as a reserve in dugouts back of the support trench The soldiers' water bottles are filled there Cavalry soldiers are supplied with sterilizing tablets for use in the bottles themselves

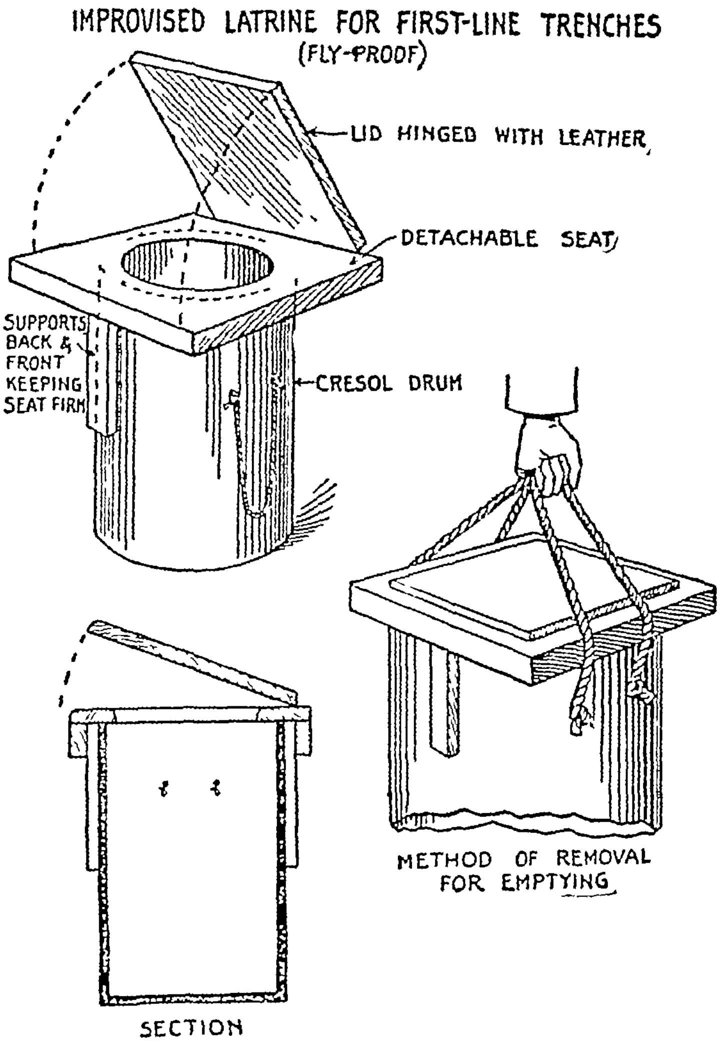
IMPROVISED LATRINE FOR FIRST-LINE TRENCHES
(FLY-PROOF)
LID HINGED WITH LEATHER
DETACHABLE SEAT
SUPPORTS BACK & FRONT KEEPING SEAT FIRM
CRESOL DRUM
METHOD OF REMOVAL FOR EMPTYING
SECTION

Fig 3 —Fly proof cover for latrine pail

III DISPOSITION OF EXCRETA

The conditions to be met abroad with respect to this point are practically those of a siege Various methods were tried in the earlier part of the war One of the simplest was a sort of reversion to the old stink-pot idea of the Chinese, that is, the material, collected in buckets, was thrown over into the enemy's trenches Reprisal on the part of the enemy led to a tacit mutual abandonment of this plan Moreover, the use, under any conditions, of pits, buckets, etc, in the first-line fire trenches led to results so disagreeable and even insanitary that the attempt, made for the sake of convenience, had also to be abandoned

The only practicable solution of this important problem has been found in the system of disposal employed at present by the British, which is to use bomb-proof pits or dugouts leading out of the "communication" trenches The position of these trenches and the associated pits will be readily understood by an inspection of the accompanying diagram (Fig 1)

The ideal method, and one that is practicable in most cases, is to use, in the pits, individual buckets or tins with improvised handles, enclosed in simply constructed fly-proof boxes, or at least in boxes having a fly-proof lift-off seat, that will fit closely on the top of the pail Lids should be made self-closing (Figs 2 and 3) The pails when about two thirds full are replaced by clean ones, and carried back by hand for final disposition of their contents Fresh buckets are filled about one quarter full with dilute cresol solution (1 360), after the internal surface has been rubbed with crude oil, when this is available In some cases, especially when incineration of the contents of the buckets is to be carried out, sawdust, instead of cresol, to a depth of one quarter to one third, is employed, and the same material added by a scoop after each act of defecation—100 pounds of sawdust per day per regiment will suffice Whenever spillage occurs during removal, the soiled area should be treated at once with a 5 per cent cresol solution When possible to provide it, a concrete floor for the bomb-proof pit is a great improvement Bombproofing usually means in this connection simply a sufficiently thick layer of earth between the roof of the excavation and the surface of the ground

It naturally adds much to the efficiency of this system if the urine can be handled separately, particularly in incinerator methods This is done in some cases by separate urine buckets, in others, as in the diagram (Fig 4), by urine soakage pits These are constructed by digging holes in the ground at a convenient place in the bombproof pit about 4 feet in each dimension, loosening the earth at the bottom, and then filling up with stones or perforated tin cans to near the top, a layer of brush or grass or sacking is placed over the stones, and the whole filled up with earth level with the surface of the ground Funnels painted white, so they can be easily seen at night, may be built into the four corners of the urine pit, or a galvanized iron trough, conveniently situated to catch the urine, may be led into it (Fig 4) Loose plugs of hay should be placed in the funnels, and with all soiled areas of the contiguous ground surface, as well as urine troughs when present, be treated with 5 per cent cresol solution about twice daily

The under as well as the upper surface of the above described box-seats should be swabbed with cresol

Cleaned buckets, cresol solution, sawdust, toilet paper, and other necessary materials are stored in a bomb-proof dugout situated off the communicating trench, conveniently near to the bucket and urine pits (Fig 1).

As to final disposal, the buckets are carried back by hand and (1) buried, (2) incinerated in destructors, or (3) emptied into deep trench latrines. In any case the buckets are at once cleaned best over a concrete washing platform and with the aid of dilute cresol solution followed by the use of dry sawdust and a stiff brush.

1 In disposition by burial, the contents of the buckets are emptied into a quartermaster's sanitary cart (*Anglice* tumbrel) and carted away to the reception area, where they are trenched into the ground daily and covered with not less than 12 inches of earth. Urine or sullage water is best treated separately by first passing it through a sedimentation tank, and then irrigating it out on to shallow furrows on the land selected through wooden or earthenware channels. Pools should be avoided by feeding out the effluent as evenly as possible. The areas treated in this way are with difficulty kept in a sanitary condition with regard to flies and, in the thickly inhabited areas of northern France, are often hard to find available.

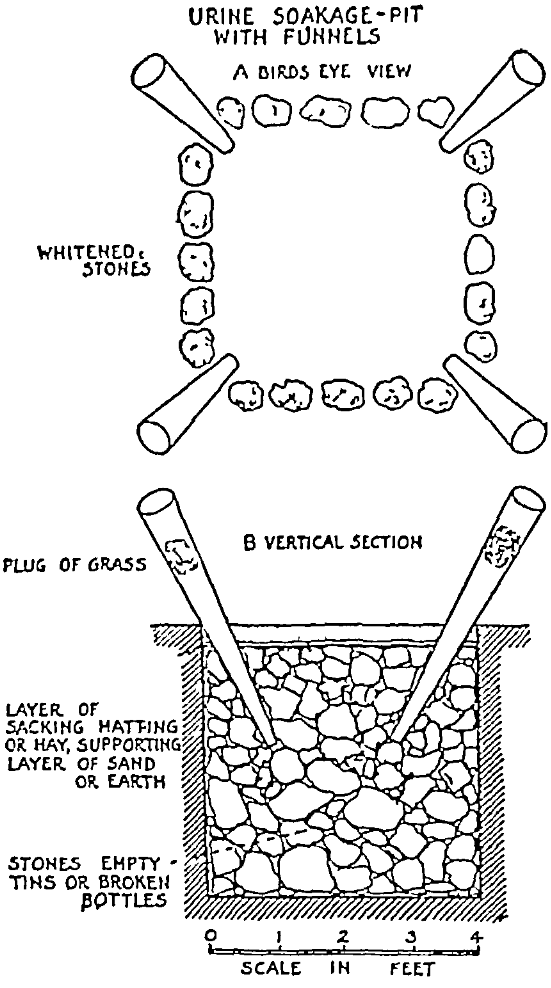
URINE SOAKAGE-PIT WITH FUNNELS
A BIRDS EYE VIEW
WHITENED STONES
B VERTICAL SECTION
PLUG OF GRASS
LAYER OF SACKING MATTING OR HAY, SUPPORTING LAYER OF SAND OR EARTH
STONES EMPTY TINS OR BROKEN BOTTLES
0
1
2
3
4
SCALE IN FEET

Fig 4 —Urine soakage pit

2 The ideal method of disposal, and that selected wherever practicable is by incineration in some suitable form of destructor. This apparatus can also handle other forms of dry camp refuse, which in addition serves as fuel. The British use successfully the Horsfall and the Meldrum types of destructors or some improvised modifications of them.

The unit or Horsfall portable destructor is constructed of iron walls with firebrick lining. It serves 1,000 men, if the urine has been previously drained away from the solids into a soak pit, and at an expenditure of not over 100 pounds of fuel per day. In this type of incinerator the furnace is separated from the bottom of the flue by a baffle plate, thus forming a combustion chamber in which the solid excreta are burned. This is the essential thing in the plan of this apparatus as, besides aiding combustion, offensive gases are thus oxidized and made inodorous. Very careful firing and stoking is necessary for its proper working, a supply of one half fecal matter and one half other refuse at each feeding giving the best results. The English Sanitary Notes (1916) state that improvised incinerators of the Horsfall type may be easily made with bricks or kerosene oil tins filled with ash and clay and wired together, the important thing being to be sure that a proper combustion chamber is provided.

The central or Meldrum type of destructor works on a larger scale and serves from 5,000 to 8,000 men. Being fixed and necessarily located further back from the front than the smaller Horsfall type, cartage of the buckets for part of the distance is required. A drying shelf over the fire is a very useful addition to the fixed incinerator. It is in these incinerator methods, as stated above, that the sawdust is an especial improvement over the cresol solution for the pails.

The foregoing are of the closed types of incinerator. The open types, while easily adapted to ordinary refuse, are for obvious reasons extremely difficult if not impossible of application to the disposal of excreta.

3 In the use of the pit system of deep trench latrines for the final disposition of excreta on a large scale, holes are dug in a suitable place from 10 to 12 feet square and about 4½ feet deep. The English call this arrangement the "American oil-pit," and it is in fact a sort of compromise between the burial and incinerator methods just described. It is, I believe, the method now most used by the British. It certainly has the advantage of simplicity and can be made to work satisfactorily, if not perfectly, by proper supervision and care. Everything depends on the method of handling. A fly-proof cover is placed over the pit. The contents of the buckets brought back by hand from the bomb-proof pits in the communication trenches are emptied into the pit with kitchen and other camp refuse, including old tins which have previously been perforated. Urine is handled in this method by having a false bottom to the pit made of corrugated sheet iron, with numerous perforations through which the liquid material runs. In other cases the bottom of the trench is made to slope down toward a smaller and deeper pit on one side, into which the urine runs. Once a day, the fly-proof cover is removed from the trench, some hay or straw added, kerosene oil is poured over the material contained in the pit, and the whole burned over. The heat generated serves to evaporate the liquids. When the contents have reached within about 3 feet of the surface, the pit is filled in with earth and a new one dug.

Closely allied in principle to the subject of the disposal of human excreta is that of the disposition of horse manure, itself a vital question around army camps, on account of the enormous breeding of flies that always takes place, when some scientific and adequately administered plan of prevention is not carried out. The picket lines, which are, for convenience, nearly always in the immediate vicinity of camps, should be cleaned off carefully every day and the scrapings as well as gross manure removed. The lines should be burned over at least once a week with the aid of kerosene

The difficult problem is to dispose of the manure thus collected The ideal plan, and the one followed whenever practicable, is to burn it in specially designed incinerators I have seen this satisfactorily done in the ordinary rock pile incinerators that we have used for some years past in the disposal of refuse in our American camps Good results are difficult of accomplishment, however, and require much labor and care Abroad, more elaborate methods have been put into practice, and though the construction of the required apparatus is more difficult than in the case of the rock-pile incinerator, the subsequent working is much easier and more economical

One plan is to construct a wire frame or grid This is of any required length, and is made in rectangular basket shape, the bed being 4 feet wide and 4 feet deep, and elevated about 2 feet above the surface of the ground Any kind of wire may be used, such, for example, as that found binding up bundles of hay The meshes of the trough or basket are about 5 inches square The incinerator is set broadside to the prevailing winds The bars at the bottom are made to run from side to side rather than longitudinally

Another type of manure incinerator is a rectangular open brick pit, built like the former, above the ground Its internal dimensions are from 9 to 10 feet each way, enclosed by a brick wall 9 inches thick and about 5 feet high Air inlets are arranged below on the sides at the ground level, and are about 15 inches square Just above these is laid a row of Decauville rails, turned with the flange up and about 3 inches apart, to form the grate bed

Either of these devices burns manure quite effectively, with the aid of a little kerosene To save fuel the manure should be first spread on an improvised drying platform, best built of concrete, situated alongside the incinerator

In default of incinerators, manure should be carted as far as practicable away from camp and piled in a dump on firm, dry ground, according to the English method of "close packing" A compact rectangular block is the best shape, not over 5 feet high Each new load of manure should be beaten down tightly with shovels into the sides of the heap, and the surface and sides treated by spraying with a solution of borax (3/4 pound to 1 gallon of water) The whole is finally covered over with about 12 inches of earth The theory is that the heat developed by fermentation in the interior of a mass of this kind will prevent fly breeding by killing the larvae

We thus attempt by the methods described above to attack the fly evil at its source, that is, to prevent breeding Surprising results can be had by hard work and careful supervision However, none of these plans in actual practice ever works quite perfectly Some flies will get into the best managed camp, and even there we must attack them with zeal and the use of fly traps, sticky paper, poisoning (3 per cent dilution of liquor formaldehydi in sweetened milk makes a bait attractive as well as destructive to flies) and the wire "swatter" The matter of screening I have already considered

Animal carcases, such as those of horses, are liable to cause great nuisance and must be suitably disposed of The simplest method is to eviscerate the body and bury the entrails and other viscera The remains of the animal are then covered over with hay or dry grass, a quart or so of kerosene is poured on, and the whole is set fire to This does not usually accomplish complete incineration, but has the effect of sterilizing the surfaces of the ground as well as of the body, so that flies are not attracted and no particular nuisance results

As to the disposal of human bodies, it is probable that, scientifically speaking at least, when they are in large numbers and in thickly settled areas, the method of incineration is most sanitary and generally satisfactory A stone cairn is constructed, and on this alternate layers of bodies and wood are placed Kerosene or tar is poured freely over the bodies and fuel and the whole set fire to Combustion is usually efficacious and no further measures necessary The method is said to have been used with success in Manchuria The British, for sentimental reasons, have not adopted it in the present war, and I believe they have had no particular trouble in carrying out the usual methods of disposal by burial It is extremely probable that we shall follow their example in this particular, though of the sanitary advantages of the cremation method there can be little doubt

IV PERSONAL CLEANLINESS

This question, always important in sanitation, and especially so in armies on account of the unavoidable crowding, takes on added importance in the present war, owing to the recently discovered fact that the body louse is the transmitting agent of typhus fever The recent epidemic of this disease in Serbia will be readily recalled to mind, and it requires little stretching of the imagination to conceive of its possible introduction at any time on the western front

In conditions such as prevail at present in northern France and Belgium it is, of course, impossible to banish the louse entirely, the attempt must be made, however, to reduce to the minimum this unpleasant and dangerous accompaniment of army camps under what amounts, in this respect, to siege conditions, hence the phrase, "delousing" Adequate personal cleanliness of body and clothing is the only preventive or, I should say, palliative for this pest The individual can, no doubt, do a great deal along these lines to meliorate his own condition Army sanitarians must also do everything possible to afford facilities for the necessary delousing, by wholesale, of the troops This can be effected only by the establishment of divisional or other bathing plants for the soldiers, in connection with adequate facilities for the washing and disinfection of clothing on a large scale I have recently described these matters in considerable detail elsewhere,[4] so I shall here pass them over with the mere mention of their great importance The periodic examination of the men (at least once a week) to determine the fact of infestation by lice is of great value in this connection

The personal use, besides frequent bathing, changing and washing of the clothing, of certain local applications has been found by the British to be quite effective For killing adults, a powder known as the N C I is dusted on the underclothing This powder is composed of naphthalene, 96 parts, creosote, 2 parts, and iodoform, 2 parts, about two thirds ounce is required for each man A special ointment has been found to have the effect of asphyxiating the young as they hatch out of the ova This is rubbed into the interior seams of the various articles of clothing, in the quantity of about 1 ounce once a week It is composed of crude mineral oil, 9 parts, soft soap, 5 parts, and water 1 part The body, from the neck down, may also be anointed with this paste A recent method said to be successful is to impregnate articles of underclothing by dipping and wringing them out in a solution of 1 per cent each of naphthalene and sulphur in benzene or gasoline This is the English "antiparasitic vest" and it is not especially irritating to the skin

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[4] McCulloch, C C South Med Jour, July, 1917

It is not very difficult to free the person from lice by these methods, but early reinfection in the billets and quarters can hardly be prevented, so eternal vigilance is as necessary here as it is in the pursuit of political liberty

Infected buildings and huts should be treated with two hours' exposure to sulphur dioxid fumigation by the Clayton apparatus Clothing and blankets may be disinfected on a large scale in the same way Scalding the underclothing and ironing the seams of the outer clothing with a hot flatiron is sometimes quite effective, in default of more thorough methods

It may be well to add a brief account of a few of the simpler methods of field disinfection in actual use abroad

1 There is the portable emergency steam apparatus known as the Thresh disinfector Its principle is that of the modern steam disinfector, that is it has a central chamber into which the articles to be treated are placed and through which the current of steam flows, surrounded by an outer chamber or jacket, into which steam is first admitted and which serves to prevent condensation and loss of heat Infected articles are put in at one end of the apparatus and after treatment are taken out sterilized at the other end to avoid subsequent contamination at the sterilizer itself Steam at ordinary atmospheric pressure evolved from a concentrated saline solution, is used in the field apparatus and is safe and adequate for practical purposes Half an hour's exposure is sufficient, and the usual sized apparatus will accommodate sixty blankets, or their equivalent in clothing, at each charge By using a sufficient number of these disinfectors, it is quite possible to supply an installation that will cover the large amount of work required in connection with the modern elaborate plants for divisional baths

2 The field box disinfector works on the same principle, but is much simpler than the Thresh apparatus It consists of a jacketed metal box, with openings at top and bottom through which there is conducted steam generated in a separate metal boiler, heated over an improvised stone furnace The only disadvantage of this apparatus is its rather small capacity

3 The so-called "Serbian barrel" is an improvisation that has been much used and with good results on the British front in Belgium The bottom end of a barrel is perforated with holes, and the top replaced by a flat metal lid, weighted down so as to fit tightly Sandbag collars are wound around the top and bottom of the barrel, to retain the steam, the whole being then placed over a metal boiler, and this in turn rests on a brick or improvised adobe furnace, which has a flue at one end The barrels with separate boilers are often set in series over a long narrow furnace A container of 60 gallons' capacity will handle seven blankets at a time As many as eighty of these Serbian barrels have been used at one time in a divisional bathing plant, where the Thresh disinfectors were not available

(To be continued)

ARGYRIA LOCALIS DUE TO ORGANIC SILVER PREPARATIONS *

GEORGE MANGHILL OLSON, M D
MINNEAPOLIS

A pronounced bluish green, slate gray or dark brown permanent pigmentation of the skin is a very unfortunate accident that may follow the local therapeutic use of argyrol and the various other organic silver preparations

The generalized argyria or argyria universalis following the internal use of silver nitrate, or occasionally its local application, has been well studied and recognized since the classical paper on this subject by Frommann[1] in 1859

The localized argyria or argyria localis following the local use of silver nitrate, and that occurring as an occupational argyria in workers in silver, is also well known, very valuable papers having been written on this subject by Blaschko[2] and Lewin[3] of Berlin in 1886 and more recently by Koelsch[4] in 1912

Comparatively little work has been done and very little has been published on the localized argyria due to the local use of argyrol and the other organic silver compounds At times the local use of argyrol and protargol results in a generalized argyria, as reported by Davidson[5] This, however, is quite unusual, and the resulting argyria that may follow the local use of the organic silver compounds is nearly always localized or argyria localis

Synonyms Argyrosis, argyriasis, argyrism

THE ORGANIC SILVER PREPARATIONS

Argyrol and protargol, with albargin in Germany, are probably the most important of this group Other organic silver compounds are argentamin, argonin, ichthargan, sophol and cargentos

CASE REPORT

The patient Miss M, first came under my observation in November 1916 Four years previously she had sustained a fracture of the nose, the laceration of the soft parts extending to the right lower eyelid

Her physician, in addition to other measures, dropped argyrol into the right eye The argyrol made its way into the lacerated tissue of the right lower eyelid, nose and cheek The conjunctiva was not affected

The resulting bluish green and slate gray pigmentation has been very unsightly and for its relief the patient had consulted oculists and physicians in this country and abroad The extreme edge of the pigmentation in the middle of the cheek disappeared spontaneously Fifteen or twenty bichlorid of mercury injections had been given in the remaining pigmented area, and according to the patient, a slight improvement had resulted from these injections

During the past two years the condition has been stationary

Under the administration of hexamethylenamin, 5 grains three times a day the condition improved at once, and in two weeks half of the area of the pigmentation was gone, and the rest of the area of pigmentation was considerably lighter in color The hexamethylenamin was then increased to 10 grains three times a day The improvement continued but was not as marked as during the first two weeks After six weeks the hexamethylenamin proved irritating to the stomach and kidneys, and was discontinued for a time

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* Read before the Section on Dermatology at the Sixty Eighth Annual Session of the American Medical Association New York, June 1917

[1] Frommann Virchows Arch f path Anat., 1859 **17**, p 135
[2] Blaschko Monatsh f prak Dermat 1886 p 197
[3] Lewin Berl. klin Wchnschr, 1886 p 417
[4] Koelsch München med Wchnschr 1912 **59**, 304
[5] Davidson Jour Cutan Dis August 1916 p 605

Approximately 75 per cent of the pigmentation had disappeared at this time

The hexamethylenamin treatment was first used by Crispin[6] in argyria universalis due to collargol Hexamethylenamin was given for a cold, and the patient and physician were astonished to note that the silver pigmentation became several degrees lighter in color

REVIEW OF THE CASES REPORTED

The majority of the cases of argyria of the skin due to organic silver preparations have involved the upper and lower eyelid and the adjacent skin Conjunctival argyria, due to argyrol, etc , is still more frequent, but the majority of these cases do not involve the skin[7]

Post,[8] under the title "An Experience with Staining the Skin by Argyrol," reported an argyria of the skin of the upper eyelid, the pigmentation extending almost to the eyebrow In this patient the condition was due to the injection of argyrol following an operative procedure In this article he mentions two other cases

Davidson,[5] in 1916, reported a case of generalized argyria due to urethral injections of argyrol and protargol Undoubtedly some cases of localized argyria due to urethral injections or instillations of organic silver salts have been overlooked or not reported

A case of generalized argyria due to the internal administration of collargol was reported in 1914 by Crispin[6]

CLINICAL SYMPTOMS

Following the repeated simple application of argyrol, etc , the staining comes on very slowly and gradually, and the discoloration or pigmentation constitutes the only symptom If the solution has suddenly penetrated into the connective tissues following an injection or if argyrol has been applied to a lacerated wound, pain and swelling are present However, the pain and swelling are not severe, and usually the only symptom presented is the pigmentation or discoloration The argyrol solution stains the connective tissue in the cutis and subcutis at once, and, provided the epidermis is thin, as in the eyelids, the bluish green discoloration becomes apparent immediately In places where the epidermis is thick and the argyrol solution has found its way only into the deeper parts of the subcutis, the pigmentation may not appear for some days, or until the stain is taken up by the tissues directly beneath the epidermis

The color is usually bluish green, although often there are present varying shades of slaty gray and brown The depth of the pigmentation varies according to the amount of silver in the preparation used Thus a 5 per cent solution of argyrol (25 per cent silver) gives a very much more intense bluish green color than a 5 per cent solution of protargol (8 3 per cent silver)

The epidermis is rarely affected, but when involved shows a brown or black color

About the eyelids the dark gray and bluish green pigmentation is decidedly more apparent when the patient is cold or tired

HISTOPATHOLOGY

The pathology of argyria due to organic silver compounds is very similar to that of argyria due to silver nitrate The silver pigment shows an especial affinity for the elastic tissue fibers These fibers contain the granules of the silver pigment in combination as elastin silver

The collagenous tissue fibers are stained diffusely and, provided the argyrol is in sufficient amount, stain a quite intense brown

The silver pigmentation is usually marked in the subpapillary layer and about the hair follicles and cutaneous glands The connective tissue cells show very little tendency to take up the stain

The epidermis and the epithelial cells of the sweat and sebaceous glands are nearly always free from pigmentation, but occasionally show a diffuse brown color

CHEMICAL NATURE OF THE SILVER DEPOSITS

The exact nature or formula of the silver deposits is a matter of doubt, but it seems very probable that the silver is present as silver albuminate or as complex albuminoid or organic compounds, and not as reduced silver or the oxids of silver

Kanitz[9] has quite clearly pointed out that the silver deposits in the tissues, even in argyria due to metallic silver in occupational argyria, and that due to silver nitrate, are probably present as complex organic compounds Unna[10] has called this combination elastin silver when affecting the elastic tissue fibers, and collagen silver when affecting the collagenous tissue fibers Many writers, however, state that the silver deposits in argyria are present as the chlorid or subchlorid,[11] sulphid,[2], carbonate,[12] the various oxids of silver,[13] or even as minute particles of metallic silver[14]

While it seems most probable that the greater part of the silver is present as a complex organic or albuminoid compound, a small part of the silver may be present as the oxid, chlorid, sulphid, carbonate or as metallic silver

PROPHYLAXIS

The danger of argyria from the use of the organic silver preparations is not great provided certain precautions are taken in their use

The results obtained in our animal experiments with argyrol show that fresh solutions give the same picture and degree of argyria that old solutions do In other words, the argyria is due to argyrol as such, and not to decomposed substances in old solutions

The intact epidermis and epithelium of the mucous membranes practically never take up the silver stain, unless the solutions are used steadily for a long time

Ulcerated parts, as ulcer of the cornea and burns, where the epithelial layer is lost, readily take up the stain

In chronic inflammatory conditions the epithelium of the mucous membranes becomes more susceptible to the organic silver solutions

There is especial danger in forcibly injecting the solution of organic silver into the tear duct, urethra and similar places, as the stain may be forced into the loose connective tissues

Argyrol, protargol and the other organic silver compounds should never be used *in or near* lacerated wounds

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[6] Crispin, A M Argyrism Following the Use of Collargol, The Journal A M A, May 2 1914, p 1394

[7] Lystad Tidsskr f D Norske Lægefor , 1908, p 685

[8] Post Am Jour Ophth , St Louis, 1905, p 86

[9] Kanitz *Arch f Dermat u Syph* , 1909, **94**, 49

[10] Unna *Histopathology of the Diseases of the Skin*, 1896, p 1189

[11] Burdon Cooper *Ophthalmoscope*, June, 1917

[12] Posey and Wright *Diseases of the Eye, Nose, Throat and Ear*, 1903

[13] Fuchs *Text Book of Ophthalmology*, Duane Translation, Ed 4, 1913

[14] Warthin Reference Handbook of the Medical Sciences, 1913 Skramlik Abstr , Practical Medicine Series, 1916 **3**, 93

Patients should never be allowed to use solutions of argyrol, etc., as a home treatment for any great length of time. They should be required to report at least every two weeks, any slight degree of argyria looked for and, if found, the use of the solution should be discontinued.

PROGNOSIS

The general opinion regarding argyria in general is that the prognosis is bad or hopeless. The prognosis in generalized argyria due to the internal administration of silver nitrate, in which condition there is a large amount of silver in the tissues, is undoubtedly almost hopeless.

However, this is not true as regards the localized argyrias due to organic silver preparations. The amount of silver in the tissues in these cases is small, and without question, in some of these patients, the pigmentation disappears spontaneously. Even in cases of localized occupational argyria due to metallic silver the pigmentation occasionally fades, as in the case reported by Telcky.[15]

In Warthin's patient,[14] the argyria being general and due to colonic irrigations with silver nitrate, there was after several years a very marked lessening of the color, which Warthin ascribed to the fact that the patient had become adipose, the fatty tissue concealing the pigmentation.

TREATMENT

It obviously is impossible to destroy the silver present in the discoloration of argyria, and thus the problem is entirely different from that involved in the removal of such discolorations as that due to melanin in moles, etc.

Theoretically, there are three methods by which the stain might be removed. The first method is the employment by injection or otherwise of some remedy to form a permanent colorless combination with the silver. This is probably impossible, as all silver salts, especially in the presence of organic material and light, tend to break down and give a brown or black discoloration.

The second method by which the condition might be remedied is the use of such agents as blistering and electrolysis. These methods cause a local inflammatory reaction that probably results in a partial removal of the silver granules by the wandering cells.

The third and most important method is the use, either internally or by injection, of remedies that form soluble compounds with the silver pigment in the tissues, these resulting soluble compounds being absorbed and probably excreted by the kidneys.

The remedies in this third group must be sought either empirically or by experimentation on animals.

Remedies such as bichlorid of mercury, that in strong solutions completely decolorize argyrol in the test tube, are of little use in the tissues, while remedies, such as hexamethylenamin, that have a weaker effect on argyrol in the test tube, may be more useful in removing the argyrol stain in the tissues.

Sodium iodid internally 5 to 10 grains three times a day is recommended by Post.[8] Larger doses of sodium and potassium iodid have been given internally. Local injections of sodium iodid have also been used.

From the results obtained in Crispin's patient and in my patient, I believe that the hexamethylenamin treatment gives promise of being of value in this condition. This drug is given in 5 to 10 grain doses three times a day. A lessening of the stain should occur within two weeks. However, the pigmentation fades slowly, so that it is necessary to continue treatment for some months, allowing intervals of rest so that no irritation of the stomach or kidneys results.

Hexamethylenamin might also be used as a local injection, as Burnam[16] reports that it is not irritant in man in 1:7,500 and 1:250 solutions. In rabbits a 50 per cent. solution is not irritating when given hypodermically.

As far as I know, the hexamethylenamin treatment has been used in only two cases, and while the results obtained in these two patients have been quite striking, the drug must be tried in many more patients with argyria due to organic silver salts, before we can come to any definite conclusions. The treatment, however, is inexpensive, easily given, and certainly deserves a trial in every case of argyria.

EXPERIMENTAL ARGYRIA[17]

In our early experiments the dog, guinea-pig and rabbit were injected with argyrol, etc., or these organic silver preparations were applied to lacerated wounds. In the rabbit the resulting argyria was more clearly seen, probably because of the thinness and translucency of the epidermis of the rabbit, so that in the later experiments rabbits exclusively were used.

In the rabbit immediately after the injection of fresh or old solutions of argyrol, protargol, etc., the typical bluish green color of argyria is seen. This is very beautifully shown in the ear of the rabbit where the tissues are very thin and translucent. The bluish green color is not due to a bluish green color of the silver deposits, but to the fact that the brown argyrol solution in the tissues appears bluish green when seen through the uninvolved translucent epidermis.

Small amounts of argyrol, as 0.4 c.c. of a 5 per cent. solution, do not prove irritating when injected into the rabbit, and but little swelling or induration results. The injection of large amounts of argyrol or protargol may prove irritating and result in large firm swellings.

The histopathology of argyria in animals is similar to that in man. The elastic tissue especially is involved, showing fine granules of silver pigment. The epidermis and the epithelium of the sweat and sebaceous glands are very rarely pigmented with the silver stain.

EXPERIMENTAL THERAPY

The chemical composition of argyrol is changed when it comes in contact with the tissues, so that decolorization of argyrol in the test tube with various chemical substances does not necessarily show that these chemicals will decolorize the silver deposits in argyrol argyria.

However, it is of interest to note that in addition to mercuric chlorid, potassium iodid, solution of formaldehyd, ammonia and hexamethylenamin will decolorize argyrol solutions. Five grains of hexamethylenamin will decolorize 1 c.c. of a 1:20,000 solution of argyrol.

At the outset of our experimental work in the therapy of this condition, we had hoped that we would be able to rapidly clear out the silver pigmentation by injections of hexamethylenamin, while in the untreated animals the silver pigmentation would undergo no change Thus we would be able to show conclusively the efficacy of hexamethylenamin in this condition This we were unable to do

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[15] Telcky Wien. med. Wchnschr 1913 p 2886

[16] Burnam C F An Experimental Investigation on the Value of Hexamethylenamin and Allied Compounds Arch Int Med October 1912 p 224

[17] Work on experimental argyria carried out at the Research Laboratories of the Department of Medicine (Division of Dermatology), University of Minnesota Medical School

The action of hexamethylenamin given over a comparatively long period of time is not so clear, as in all animals there is a marked tendency toward the spontaneous absorption of the silver pigment In the dog and rabbit over half of 0 4 c c of a 5 per cent solution of argyrol is absorbed in about two months Thus the control animals were of little value to us as a measure of comparison with the treated animals

In our first experiments the pigmentation apparently cleared up more rapidly in the treated than in the untreated control animals, but in our later experiments we were unable to see very much difference in the rate at which the pigmentation cleared up In no case were we able to completely clear up the pigmentation by injection of hexamethylenamin

SUMMARY

1 A very unsightly permanent pigmentation of the skin may follow the local use of argyrol and the various other organic silver preparations

2 The use of freshly prepared solutions of argyrol does not diminish in any degree the danger of argyria

3 The bluish green or slate gray color is not due to a bluish green or slate gray color of the silver deposits, but to the fact that the dark brown silver deposits appear bluish green or slate gray when seen through the uninvolved translucent epidermis

4 The occurrence of localized argyria following the use of argyrol, protargol, etc, is uncommon, but the resulting blemish is so unsightly that every care should be taken in the use of these substances The solutions should never be forcibly injected into any cavity or canal as the tear ducts, urethra, etc, and should not be applied when the skin or mucous membrane is not intact

5 The general opinion is that the condition is irremediable The conclusions drawn from this paper warrant a more hopeful prognosis

6 Local measures, such as blistering and electrolysis, are possibly of some value in causing an inflammatory reaction that favors absorption of the silver deposits

7 The hexamethylenamin treatment should be given a trial in every case of argyria due to organic silver compounds

ABSTRACT OF DISCUSSION

Dr William A Pusey, Chicago I have had occasion to see some of the cases of localized argyria produced by the injection of argyrol into the lachrimal duct I am greatly interested in Dr Olson's suggestion of hexamethylenamin I always thought the condition beyond relief, and I am glad to know of this possible means of improving it. While he was talking of deposits of silver in the tissues, I thought of some other accidents which have come to my notice of essentially the same character In the case of argyria, a soluble silver salt enters the tissues and is deposited as an insoluble form of silver It is really a tattooing from within I have seen three or four very unpleasant accidents from the precipitation of insoluble substances which have been used on ulcerated skin surfaces as local applications The most striking case of this sort was that of a woman who came to me a few years ago with an eruption over her shoulders which looked like a follicular purpura A solution of copperas—sulphate of iron—had been used as a local application, with a resulting deposit of iron oxid in the corium The skin had healed over this and there was left a permanent deposit of iron oxid in the skin, tattooing it a dark mahogany red In sections it was proved with a potassium ferrocyanid reaction that this deposit was iron I have also seen a white tattooing of the skin from solutions of lead acetate on surfaces where the epidermis in spots was completely destroyed The use of local applications, therefore, which may deposit insoluble substances in the corium, if there is superficial ulceration of the skin, is always attended with risk of accidental pigmentation after it.

Dr William B Trimble, New York Like every one else, I have heard of a number of cases of pigmentation about the eye following the use of argyrol, but know personally of only one case In this patient as I understood it, the argyrol was injected in the lacrimal duct and caused the heavy pigmentation under the eye My main reason for entering the discussion, is to call attention to the fact that I have tried on two occasions to produce pigmentation in isolated patches of leukoderma by the use of argyrol The argyrol was diluted until, in my judgment, the proper shade was produced, and then injected under the skin It was unsuccessful in both attempts Seemingly, it is hard to produce pigmentation when it is desired, only to have it occur at times when one is least suspecting it

It occurred to me that exposure to air might have something to do with the process, and the reason for the failure of argyrol to pigment when injected subcutaneously was probably due to the fact that it did not come in contact with the air In injecting it in a suppurating lacrimal duct it is exposed to the air, and perhaps also to some rays of light.

Dr George Manghill Olson, Minneapolis The treatment with hexamethylenamin was tried on only two patients The experimental work was not conclusive

Regarding the absorption of the argyrol, of which Dr Trimble spoke, there is no question that in many cases the patients recover spontaneously Only a certain percentage of them remain permanently pigmented In my patient the pigmentation remained four years Most of the slight cases due to argyrol, especially about the eye, clear up in one, two or three years without any treatment

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THE RELATIVE VALUES OF PUBLIC HEALTH PROCEDURES *

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PROVIDENCE, R I

What constitute the most effective lines of effort is the most vital question confronting every public health administrator Money is the measure of most effort, and appropriations are limited In what way shall the appropriation for the health department be expended so as to save the most lives and prevent the most sickness? Are our municipal health departments making the best apportionment of their funds? Are health officials devoting the most effort to that which will best conserve the health of the people? If any city is doing this, it has a model health department

Certainly many cities are not doing it It is hard to break away from tradition Most persons think largely in terms of the past Institutions are of slower growth than knowledge It is a pity that they cannot be kept in closer alinement Though it would be sad, indeed, to chase every pseudoscientific will-o'-the-wisp that happens across our path, it is even worse to cling tenaciously to the dead ashes of discredited theories

Modern municipal health work began at a time when it was believed that municipal house cleaning was the chief, if not the sole, legitimate field of official sanitary activity Sanitary science has progressed by leaps and bounds Sanitary administration has been a laggard It would be most interesting to see what sort

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* Read before the Institute of Medicine, Chicago, April 24, 1917

of health department would be organized if all tradition could be ignored. Given an appropriation of say 75 cents per capita how would a commission of modern scientifically trained and experienced public health men organize a health department if they were permitted to discard tradition and take cognizance only of the present day findings of sanitary science? Our health departments are not made in this way. They are the result of growth. One function after another has been grafted on the original duty of nuisance abatement but the growth has not been well balanced. Health work does not extend according to any well thought out plan but one duty after another is added now by this person and now by that. Sometimes the health department is expanded at the instance of a group of earnest reformers having much sympathy for human ills but little versed in medical and sanitary science. Sometimes a city councilman getting his knowledge from the syndicated science of his Sunday paper, assumes to tell how the health department should be run. Again it may be the new health officer himself who, in order to justify the political overturn of his office, seeks to reorganize the health work of his city after a few hours study of some passing book on "sanitation." Rare indeed is it that competent advisers are called in to plan a health department so as to utilize most effectively the best scientific knowledge of how to preserve the health of the city, and it is more rare still for the politician to permit such a plan to be put in practice.

RELATIVE VALUES

Even those health officers who have given the subject much careful consideration do not feel sure of the relative values of different lines of health work, and it was to help clarify my own ideas as well as to assist in what I believe will be a helpful discussion that the attempt was made not long since to assign numerical values to the various functions of a municipal health department. It is said that no science can progress unless accurate measurements are made of the things dealt with. In accordance with this idea, it seemed desirable to indicate by figures the value of garbage disposal and of the diagnostic laboratory, of plumbing inspection and of baby nurses, and thereby learn how to apportion the funds and energies of the department.

In attempting to make such a distribution we must constantly bear in mind that the appropriation cannot be exceeded. A certain percentage of the funds may be set aside for contagious disease work, a certain percentage for school inspection, a certain percentage for vital statistics, and so on, but they must all add up to 100 per cent exactly. If we should yield to the behests of every enthusiast, championing his hobby, the sum might be 200 or 300 per cent, resulting in a most uncomfortable deficit. So, too, time and strength are limited, as well as money. No man can work more than sixty minutes in an hour. To assign values to functions, so that time and money may be apportioned accordingly, is the purpose of the schedule here presented.

Unfortunately sanitary science is as yet far from an exact science. Its measurements are crude. For many things we have no measurements, but only estimates or guesses. It is desirable, however, to correlate even our guesses.

The table of values is intended to indicate the relative importance which should be attached the functions which are commonly performed by a health department in any average northern city at the present time. The apportionment must vary somewhat according to location, stage of sanitary development, character of the population, etc. In the South, where there are much hookworm, typhoid fever and other diseases spread through fecal infection, excreta disposal must receive special attention. Where *Anopheles* and *Stegomyia* abound, antimosquito measures come to the forefront. If the rodents of a city are plague infected, or likely to become so, the rat must be fought. A well sewered city can appropriate money for other lines of work which in less fortunate places must be devoted to the never ending task of privy sanitation. Every city must plan its health work to suit local conditions, but there will probably be only minor variations from the generalized type.

Experience is the best teacher. Methods which have been successful in the past must be followed in the future. There has been a marked decrease in the death rate during recent years, but it has not been all along the line. The bulk of the improvement has been confined to a few diseases. Thus in Providence, in sixty years, there has been a decrease in the annual number of deaths amounting to about 600 per hundred thousand living and confined practically to typhoid fever, smallpox, scarlet fever, diphtheria, tuberculosis, diarrheal diseases and other diseases of infants.

TABLE 1—RELATIVE VALUES OF HEALTH WORK

	Vital statistics	60
	Education	80
	Laboratory	0
	Control of nostrums	50
	Care of sick poor	50
Food	Adulteration	0
	Sanitation	10
Milk	Adulteration	3
	Sanitation	17
Nuisances	Privy sanitation	60
	Housing	20
	Plumbing	10
	Nuisances	10
	Refuse removal	0
	Fly and mosquito control	10
Infant mortality	Nurses	80
	Supervision of midwives	10
	Babies boarding houses	5
	Milk stations	5
	Consultations	20
	Prenatal clinics	10
	School inspection	90
Contagious diseases	Home isolation	100
	Hospitalization	50
	Immunization	50
	Venereal diseases	20
Tuberculosis	Nurses	60
	Dispensaries	40
	Hospitalization	40
		1 000

It is not for a moment claimed that all of this reduction is due to conscious effort on the part of the community, though I believe that a good part of it is. Thus there has been a reduction in the death rate from pulmonary tuberculosis of about 240, but as it began long before any efforts were made for the control of the disease, we must believe that much of the reduction is due to unknown causes. As the decrease in recent years has been fairly rapid, and has followed well thought out methods of control, it is perhaps not unfair to assume, as I have done, that a drop of 65 deaths per hundred thousand may be attributed to present day methods of combating this disease. On the other hand, probably the whole of the decrease in typhoid fever is due to municipal effort. It seems fairly conservative to claim, as a result of community health work, at least half of the decrease in acute communicable disease above referred to which has ease is certain. It is worth while to try to check this, though the efficiency of some of the popular "sanitation" of markets and restaurants may be questioned. The elimination of infected food handlers also gives some promise, but its true value is yet to be determined. The small value here assigned may arouse protest, but who will argue that the laboratory is not five times as important, or baby nurses eight times as important, or the direct control of contagious diseases ten times as important as is food sanitation?

Milk should be considered apart from other foods. It is certainly of great importance in infant feeding, though the close dependence of infant mortality on the character of the milk supply has probably been considerably exaggerated. Many cities have markedly reduced the infant death rate without greatly improving the cleanliness of the milk. Doubtless the most effective way to eliminate the danger from milk is to require the pasteurization of all milk, or at least all except a limited amount of a certain high standard, for infant feeding. The watering of milk is an adulteration which does affect health, for a variable composition sadly interferes with exact methods of infant feeding, and likewise increases the danger of infection.

OTHER ACTIVITIES

Firmly believing, as I do, that all the medical activities of the municipality should center around the health department, I naturally consider the medical inspection of schools a proper function of this department. As a matter of fact, it is somewhat of a cooperative undertaking, and neither the school department nor the health department can properly carry it on without the free and generous assistance of the other. Tact and forebearance are needed on both sides to carry on this important work, no matter which department has it in charge. The vast majority of both teachers and medical men connected with school inspection are satisfied of its great value, but it touches school life in so many ways that a statistical demonstration of its benefits is by no means easy. Without such statistical data, it is difficult to assign a definite value to this function. The one given in the table is only tentative, and may well be subject to revision.

Another and quite new activity is the campaign against venereal disease. That this is of great importance no one denies; as to methods, however, we are still in the experimental stage. We do not as yet know what results can be obtained, though the future is promising. It does not seem unreasonable, as is here indicated, to devote 2 per cent. of the energies of the health department to this object.

ACTIVITIES WITH DEMONSTRABLE RESULTS

The sum of the values thus far assigned is 400. That is, to the activities of the health department which we have reason to believe are worth while, but the utility of which we cannot very well measure are allotted four tenths of the energy of the department. There are thus left six tenths, or 600 units on our scale, to be divided among those activities, the worth of which can be measured, with some degree of approximation, in terms of deaths prevented. These allotments are made in accordance with my judgment as indicated in the first portion of the paper.

While it is difficult to estimate the real worth of school inspection, that other branch of child welfare work known as the prevention of infant mortality has a value which is demonstrated perhaps more decisively and accurately than is any other form of preventive medicine. In practically every instance in which a community has undertaken to save the lives of its babies, it has been successful. The chief means has been the education of the mother. Wherever that has been successfully accomplished, the infant death rate has fallen. Taking the actual reduction of eighty per hundred thousand of the population in Providence, and assuming that seventy of this is due to specific effort made for that purpose, we should, according to our plan, allot a value of 126 to baby welfare work, but as this is such a promising field I have ventured to steal a little from the control of contagious diseases, and as a final estimate, 130 has been allotted. How this shall be divided among the different kinds of infant welfare work will depend somewhat on individual judgment, and may soon change as a result of wider experience. Perhaps the division here indicated may receive a fair degree of approval.

The direct control of the communicable diseases by isolation and immunization was an important duty of the health department even in that period of the last century when the dominance of the filth theory of disease had relegated it to a subordinate place. According to the best evidence at hand, there has been a marked decrease in the amount of several important contagious diseases against which fairly active measures have been taken for a considerable series of years. In cities in which the records have been kept for from fifty to seventy years, and active restrictive measures have been carried on for some time, typhoid fever, scarlet fever, diphtheria and smallpox have shown a phenomenal decrease. That this decrease is due in large part to the measures which have been taken I believe is true. Even the decreased virulence, which is responsible for part of this decrease, I have elsewhere suggested is probably partly due to the selective restriction of the more virulent, and hence more easily recognizable strains, by our methods of isolation. Among methods of control, isolation in the home is probably the most important. To secure this, special medical inspectors or trained epidemiologists have the chief place, but visiting nurses are becoming more and more useful. It will perhaps be a surprise to some that the hospitalization of acute contagious diseases is not given a higher value, as it has often been alleged that complete hospitalization would stamp out disease. This, however, it fails to do because of the unrecognized sources of infection. Hospitals are needed and needed badly for those patients who are so situated that home isolation is impossible, or who are in need of hospital care. So far as the spread of disease is concerned, the majority of patients can be taken care of fairly well at home. The great expense of the hospital is justified fully as much on humanitarian as on sanitary grounds. Its value as a health measure is perhaps fairly indicated by the rating here given.

Vaccines and curative serums are most valuable in the control of infectious diseases. Experience has shown that the use of these agents depends in great part on the initiative of the city or state. In one way or another, by furnishing at low cost, or perhaps without charge, and often by administration, the sanitary authority can succeed in popularizing methods of prevention or cure which otherwise would be little used.

A modern campaign against tuberculosis makes use of many means, and is often correlated with various private agencies. Outside of diagnosis and general education, perhaps the most important municipal activities are nursing, dispensary service and hospitalization There may be a difference of opinion about the relative value of these, but the figures given perhaps fairly represent present day views Certainly hospitalization, which a few years ago was considered of first importance, has been relegated to a secondary place

It may be asked why the protection of the water supply does not find a place in this discussion It might perhaps do so but it is more properly a function of the state department of health to guard water supplies, though some of the larger cities have resources sufficient for independent action It is rare that a local health officer has any management in water works It is his important duty to show by his morbidity statistics whether or not the water is above suspicion So, too, industrial hygiene is omitted because it also is more often, controlled by state officials A number of newer activities such as the campaign against cancer, or the degenerative diseases or the prevention of mental disease, are omitted because it was deemed unwise to let this discussion get too far afield, and better to deal with actualities rather than with possibilities

THE AIM OF COMMUNITY HEALTH WORK

It is particularly urged that the values here assigned are not final Even among the most careful students of sanitary science there would doubtless be considerable difference of opinion Some of these differences would disappear after free discussion It is partly the purpose of this attempt at valuation to bring out such discussion Minor changes might be made, but no discussion will ever demonstrate that plumbing inspection is worth more than baby nurses, or that swatting the fly is as effective as abolishing the privy vault The purpose of the paper is not to enter a special plea for the exact values here presented, but to show the need for perspective in planning health undertakings If relative values had been carefully considered, the ill balanced health department which was recently brought to my attention would never have grown up In a city of 100,000, home isolation receives only such time as the health officer can spare from his executive duties, while money is available for six nuisance inspectors There is a fumigator, but no diagnostic laboratory, three food inspectors, but no baby nurses, and several plumbing inspectors, but no welfare stations or prenatal work, and no Wassermann tests or venereal clinics

The figures given in the schedule are intended to indicate, though ever so roughly, the real health-conserving value of certain common functions of municipal health departments It is not intended that either money or time should be apportioned in exactly these ratios The cost of an adequate hospital for the care of advanced cases of tuberculosis would be many times greater than a good system of dispensaries and follow up nurses With limited funds, the dispensary and nurse comprise the most economical and effective undertaking

If the health work of the future is to be successful we must remember first that the old, ill founded idea that health work is to be centered on the environment has been displaced by the modern one, well supported by the data of science, that it is concerned directly with men and women We would all like to live in spotless, flyless towns Streets should be clean, yards tidy, houses neat, every garbage can covered, the cellar whitewashed, never a tin can on a vacant lot, every market white tiled, all bread wrapped in paper, and every laundry immaculate This is for what we have campaigns and health weeks and for which appropriations can be obtained, but it would have little effect on the death rate Mothers would continue to feed their babies with pickles and cookies, scarlet fever would spread, diphtheria would claim its toll, people would forget to be vaccinated, schoolboys would strain their eyes at their work, careless syphilitics would become paretics, ill treated poliomyelitis would make cripples, the man with "grip" would swallow tonics and cough medicines until he gave up work and his infant child died of tuberculous meningitis, and lifelong blindness would result from ophthalmia

Municipal housecleaning will not cure these evils, but education, isolation and good medical care will Community health work must have a broader outlook It must do more than cleanse and isolate It must make use of the best medical knowledge, not by stealing or begging it, but by paying for it, to prevent and cure disease Many activities must be coordinated Much has been done There is more to do Until there are unlimited money and unlimited talent available, let us earnestly study to do that which pays best

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PRIMROSE DERMATITIS AND ITS RELATION TO ANAPHYLAXIS *

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My interest in this lesion dates back one year or more, during which time I have been able to demonstrate that the primrose plant has been the exciting cause of at least ten cases of dermatitis Like other American dermatologists I believe that this form of dermatitis is far from uncommon and is on the increase, probably owing to the growing popularity of the plant

The *Primula obconica* seems to have been imported into Europe from China in 1883 Several years later it made its appearance in America, and since then several dermatologists in this country have made it and its resulting dermatitis the subject of some interesting papers Foerster,[1] Zeisler[2] and Montgomery especially have given excellent reports and clinical data of cases under their observation All of them, however, rely on one article (Nestler's[3]), for their analysis of the poisonous principle of the plant Nestler was more or less of a pioneer, and though his observations were good as far as he went, his analysis was most superficial and limited He did not say that the active poison was an oil, as some American abstractors imply and quote him as saying He confined his description in this regard to what he termed poisonous material, which he repeats several times in his article, and then goes on to mention its solvents Nestler was under the impression that every one could be poisoned by the primrose, and after many efforts succeeded in producing a dermatitis on himself He did recognize a varying sensibility of different individuals, however, and suggested its relation to the reaction of anaphylaxis

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* Read before the Section on Dermatology at the Sixty Eighth Annual Session of the American Medical Association New York, June 1917

[1] Foerster O H Primula Dermatitis The Journal A M A. Aug 20, 1910 p 642

[2] Zeisler Joseph Some Uncommon and Often Unrecognized Forms of Toxic Dermatitis, The Journal A M A, June 20 1912 p 2024

[3] Nestler s Hautreizende Primelu Berlin, 1904

In my cases of primrose dermititis I have been struck by the lack of well-marked isolated areas of intense irritation and vesiculation with the outline of the twig and leaf such as one sees in rhus poisoning Rather has the irritation been of a more irregular, diffuse, ill-defined, erythematous character As a result of this apparent difference in the irritability of the two poisons, the sufferers from primrose dermatitis seldom complain of the pain, tenderness and irritation that one sees in rhus poisoning The subjective symptoms of itching, however, appear, on the other hand, to be much more intense in primrose dermatitis In addition to this annoying symptom the patient soon begins to show signs of irritability from lack of sleep and rest To add to the injury a number of my cases had been diagnosed as scabies and so liberally anointed with sulphur ointment as to complicate the picture with a sulphur dermatitis

There is nothing difficult in the diagnosis The dermatitis, which is usually limited to the hands, lower arms and the face, strikes one as being entirely artificial In any vague cutaneous irrritation involving the above mentioned locations, one should always inquire if the sufferer handles or comes in contact with flowers As to be expected, the removal of the source of irritation soon terminates the outbreaks, and a soothing zinc and tragacanth lotion with some such antipruritic as phenol (carbolic acid) or menthol relieves the itching and heals the lesions

Considering the frequency of primrose dermatitis, it is rather odd that so little has been done in the search for the exciting poison A comparison of the literature on this lesion with that dealing with rhus poison emphasizes this very clearly The work of Syme[4] and Ford[5] in regard to this form of dermatitis venenata deserves praise, although the work of both has since been refuted Syme was no doubt dealing with more than a simple glucosid, while Ford's attractive immunity and antitoxin theory built on his idea that glucosids produce specific antibodies has been attacked from several directions I mention the foregoing experiments in order to point out the difficulties one encounters when one attempts to isolate the active principle of a plant, for we are still without this knowledge regarding rhus

As I mentioned before, Nestler made no attempt to isolate the active poison in the primrose, while his explanations of the mode of action of what he termed poisonous material rested on the theory of anaphylaxis

Without any knowledge of the active principle of the plants it is doubly hard to understand their mode of action giving rise to almost any hypothesis, anaphylaxis being the most frequently suggested

The lack of information on primrose poison can only be compared with the confusion which has arisen over the mode of action of this and other poisons The known susceptibility and immunity of certain persons to these substances so frequently observed by dermatologists are so imperfectly understood that they are apt to be confused with other reactions

My excuse, therefore, for this preliminary paper is an effort to clarify two past misconceptions, namely

1 An effort to further the quest for the active poison of *Primula obconica* and to correct our past ideas that this was an oil

2 An attempt to clarify and prevent the confusion of the vague term, "cell hypersensitiveness," with that better understood and demonstrable reaction, anaphylaxis

The question of producing an active and passive anaphylaxis, the investigation of the immunity to the primrose, and an attempt to isolate the active principle of the plant, engaged my attention in the following experiments

EXPERIMENTS

In order to show that primrose dermatitis does not depend on the general irritability of the skin, a reaction such as one often sees in some patients after the application of almost any degree of traumatic or chemical irritant, I applied a leaf of the plant to the arm of a patient who was in the midst of an attack of urticaria and who not infrequently suffered from an idiopathic eczema Twelve hours later there was no sign of dermatitis or irritation, and the outline of the leaf on the skin was barely noticeable

For control skin tests I then made an extract of leaves by grinding them up with sterile bird sand in sterile physiologic sodium chlorid solution For controls I made a similar extract of lily stems and the blooms of narcissus, two flowers that not infrequently produce dermatitis in susceptible handlers As an additional control I used sterile bird sand and physiologic sodium chlorid solution These were separately filtered and superficially inoculated into the arms of several susceptible and normal persons In no case did I get a reaction in the controls, while the primrose extract produced a severe dermatitis in the susceptible patient which spread quite beyond the area of inoculation

I then attempted to produce active and passive anaphylaxis in two guinea-pigs by an intraperitoneal injection of a sensitizing salt solution extract of the primrose, in two other pigs the sensitizing injection was composed of serum obtained from one of my susceptible patients Five days later I reversed the injections, this time giving the serum to the primrose animals and the primrose to the serum animals In one other animal both the sensitizing and anaphylactic intraperitoneal injections, five days' interval, were of primrose extract. In this work only one of the animals died or showed signs of shock the same day the second injection was given On repetition of the test on another pig, however, the animal lived three days and died not of shock but from what I believe to have been actual plant poison, an indurated abdominal lesion being present similar to that which Ford found in his animals after injecting rhus extract.

In my efforts to learn the part played by the plant protein in the dermatitis, I prepared an extract of the leaves by grinding them up in sterile bird sand and a 10 per cent salt solution This was filtered through paper until the solution was clear and was then made very faintly acid by the addition of a few drops of diluted nitric acid, after which it was placed on ice for twelve hours At the end of this time the solution was heated just to the boiling point, which caused a rather heavy murky precipitate to form The mixture was then centrifuged for four minutes and the clear supernatant liquid was pipetted off, leaving the precipitate which gave the Millon test for protein I inoculated a concentrated extract of this precipitate into two scarified areas on the arms of two of my susceptible patients, who were kept under observation for ten days During this time neither patient experienced the slightest subjective or objective symptom of a skin reaction

On another lot of leaves I made an effort to isolate an alkaloid Two extracts were prepared, one being an acidulated water mixture, the other a mixture of ether, chloroform and alcohol These were allowed to digest twelve hours, after which they were evaporated to dryness over a sand bath

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[4] Syme Johns Hopkins Thesis, 1916

[5] Ford Jour Infect. Dis., 1907, 4, 541

The residue of both mixtures was tested with Meyer's reagent or potassium mercuric iodid, and showed no evidence of an alkaloid

I next prepared a decoction of leaves in distilled water which was digested twelve hours The mixture was then digested six hours with litharge, the precipitate washed to free it from any tannin or coloring matter, then filtered, and the filtrate evaporated without heat The result of this process was a dry, brownish, deliquescent coarse powder which under the microscope contained many needle-shaped crystals A small particle of this powder which was dissolved in sterile water and applied to the right arm of a susceptible patient produced intense edema irritation, itching burning and inflammation that extended beyond the area inoculated This reaction appeared in thirty minutes increasing in intensity for eight hours and was well marked thirty-six hours later This patient did not suffer from dermographia and the solution did not cause a reaction in normal individuals I was justified in considering this substance as a crude glucosid

Another lot of leaves were extracted with alcohol, let stand three hours and the alcohol distilled off The residue was extracted with acetone for three hours after which the mixture was allowed to evaporate spontaneously The result of this was an oleoresinous mixture which caused an intense irritation when applied to the left arm of the same patient but which was unlike the glucosid mixture in that it acted slower, was quiescent several hours and not until twelve hours later did the subjective and objective symptoms equal these on the other arm This oleoresinous compound did not irritate the skin of normal patients and part of it was frozen in ice and salt to see if it contained a stearopten, such as menthol in peppermint No such crystal formed The oleoresin was now digested in alcohol and acetone solution for three days after which it was filtered and the filtrate evaporated to dryness over a sand bath After the filtrate had been evaporated to a dark brown powder eliminating any oil a particle of the powder was dissolved in diluted alcohol and applied to the arm of a susceptible patient This called forth a severe dermatitis which spread beyond the point of irritation The active poison of the oleoresin was most probably an acid

COMMENT

We, therefore, most probably have two active poisons in *Primula obconica*, one obtained by precipitating an extract with litharge and of a glucosid nature, the other a slower acting poison which appears to be an acid constituent of the resin, both, however, independent of any oil

Many of the cases of dermatitis venenata reported in recent years have been ascribed to anaphylaxis until almost every unusually severe skin and systemic reaction that occurs during the administration or application of a drug is cited as an instance of this disturbance The frequently seen skin reactions to quinin,[6] iodin,[7] iodoform,[8] mercury and salvarsan have been cited by some as examples of the reaction One is irresistibly struck by the clinical similarity of these reactions to the mucous membrane and skin hypersensitiveness seen in hay-fever and tuberculosis, both of which are supposed to be examples of anaphylaxis In the cases of susceptibility of certain individuals to primrose poison we are also dealing with cases of hypersensitiveness which certainly more closely coincide with our conceptions of true anaphylaxis than many of the reactions cited above The plant at least contains a proteinlike substance which in this respect, unlike iodin, mercury, salvarsan and other chemicals, fulfils one of the rudimentary requirements for a true specific anaphylaxis

I have shown, however, that the skin irritability is not due to protein sensitization, therefore the reaction which may superficially resemble an anaphylactic reaction in reality has no direct relation to it

In other words, we have gone far astray in our efforts to explain drug hypersensitiveness, and in our haste have distorted the theory of the reaction of anaphylaxis in order to try to make it explain a totally different phenomenon Some such confusion resulted before the terms contagion and infection were better understood and more clearly defined

It seems timely, therefore, to sound a word of warning against this misnomenclature and to recall to mind that while anaphylaxis is not entirely understood there are certain fundamental requisites necessary in order to produce a true reaction

Richet[9] was one of the first to suggest that anaphylaxis depended on the previous injection into or the presence in the body of some sensitizing substance or antigen Another demonstrated fact is that such an exciting antigenic substance must necessarily be of a protein nature The suggestion that pure lipoids, unmixed with proteins, cause antibodies has been refuted by Miller,[10] Richet, Thiels,[11] and others Zeiler[12] questions the validity of experiments that tend to show that certain chemicals combine with the proteins of the blood or tissues to form a foreign protein and cause hypersensitiveness Zinsser[13] says that to date not a single exception to this has been found, nor is any to be expected The sole contester of this being Ford,[14] who could not have produced antibodies to his glucosid for the reason that he was not working with a pure glucosid but a compound substance Von Adelung[15] was unable to duplicate Ford's results, while Stevens and Warren[16] and MacNair[17] claim that the substance he was dealing with was not a true glucosid or a compound of rhamnose, gallic acid and fisetin, but an unknown compound The recent report by Novy and DeKruif,[18] which tends to show that anaphylactic shock can be produced in an agar sensitized animal by a second injection of agar or even distilled water, is another effort to prove the nonspecificity of the reaction A somewhat similar line of reasoning regarding Witte's peptone was advanced by Biedel and Kraus[19] Different lots of this substance, however, were afterward found to contain toxic and nontoxic qualities which Brieger[20] says accounts for the conflicting anaphylactic results The origin of both Witte's peptone and agar, of course, throw more doubt on such reports Novy and DeKruif in comparing agar with Witte's peptone apparently do not recognize this

Zinsser states that the analogy between cases of drug hypersensitiveness and the phenomenon we classify as anaphylaxis is a striking one, but he agrees with Friedman[21] that they depend on quite different processes For instance, in drug hypersensitiveness, increased and continued administration or application of the drug increases the reaction, while in true anaphylaxis the reaction, if not leading to sudden death, creases and finally ceases with continued administration of the antigen Also in drug sensitization we are dealing with a primary poison against which in the reacting animal a neutralizing substance is formed, a condition quite different from that seen in hypersusceptibility against primarily harmless proteins Zinsser further states that in true anaphylaxis not only are specific antibodies present in the blood, but the production of passive anaphylaxis in animals shows that this antibody, if originating and residing in the fixed cells of the body, must necessarily also circulate in the blood stream

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[6] Boerner, Fred A Skin Reaction to Quinin, The Journal A M A March 24, 1917 p 907

[7] Friedberger Ztschr f Immunitatsforsch u exper Therap, 1912 **12**, 241

[8] Block Ztschr f exper Path. u Therap, 1911 **9**, 509

[9] Richet Compt rend Soc. de biol 1898

[10] Miller Jour Path and Bacteriol, 1913 **17**, 249

[11] Thiels Ztschr f Immunitatsforsch u exper Therap, 1913, **16** 160

[12] Zeiler Munchen med Wchnschr 1912 **59**, 401

[13] Zinsser Infection and Resistance, p 307

[14] Ford Jour Infect. Dis. 1907, **4**, 551

[15] Von Adelung, Edward An Experimental Study of Poison Oak, Arch Int Med February, 1913, p 148

[16] Warren Jour Am Pharm Assn 1907 **80**, 518

[17] MacNair Jour Infect Dis., 1917, **20**, 485

[18] Novy F G and DeKruif, P H Anaphylatoxin and Anaphylaxis The Journal A M A. May 26, 1917 p 1524

[19] Biedel and Kraus Wien klin Wchnschr 1909 No 11

[20] Brieger Die Ptomaine,' 1 p 14, and Hammersten Physiological Chemistry

[21] Friedman, quoted by Zinsser Infection and Resistance p 408

In primrose dermatitis, although an example of hypersensitiveness to drugs and chemicals, the requisites of anaphylaxis are not fulfilled, and while superficially similar, the confounding of the two quite different processes is incorrect As I have shown in primrose dermatitis, it is not possible to sensitize an animal either actively or passively with the poison of the plant, that no specific amboceptors are present in the blood of susceptible patients, that the protein of the plant has nothing to do with the reaction, and that this being the case it is as impossible to produce an antitoxin to the poison of the plant as it is to produce a condition of artificial specific sensitization

The cases of skin "anaphylaxis" above cited seem to be examples of cellular or epithelial irritability, and being so are considered symptomatic expressions of local cell hypersensitiveness established spontaneously and not dependent on toxins or any immunologic process The antibodies, if concerned in the reaction, are present only in the sensitive cells, the protoplasm of which, Block showed, has an increased affinity for that particular poison

I did not attempt to produce a protein from the bloom of the plant, as it has been proved that the active poison is secreted from glandular hairs of the leaves, and that poison has no relation to a protein for two reasons 1 A protein made from the leaves and stem causes no skin reaction in hypersensitive patients 2 The poison is soluble and can be extracted by absolute alcohol, which does not dissolve proteins

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ABSTRACT OF DISCUSSION

Dr. Philip Kilroy, Springfield, Mass While this paper needs no discussion, it should not be let pass without an expression of gratitude to the author It is a demonstrative paper which should get rid of the tendency to give mystical explanations of very commonplace facts The tendency to look for a mystical anaphylactic reaction has gone so far that I expect soon to be told that the sore caused by a burn is the anaphylaxis of some previous burn. Those of us who have been stung by a nettle or a wasp know that the result is only the irritation of the skin by an irritating substance That the result is greater in one person than in another requires no explanation other than that assigned by Dr Simpson Some people will get a violent dermatitis from a sun exposure that will not even tan the skin of others

Dr. Walter J Heimann, New York I regret that Dr Simpson did not carry his work to what seems to me to be completion His work has been confined to leaves and stems, while I think he should have done something on pollen, and perhaps on petals I believe as he pursues his investigation he will take up these features In using the word "hypersusceptible" I think Dr. Simpson has weakened his own case Hypersusceptibility we have assumed to be due to previous exposure to an alien protein What Dr Simpson means, I believe, is an ordinary susceptibility

In any kind of chemical dermatitis the majority of people do not react to the pathologic agent Those who react are considered susceptible, and the others are not considered susceptible. Those who react very strongly might be considered hypersusceptible. In spite of Dr Simpson's endeavor to be clear, his use of the word is unhappy, as it refers to allergic phenomena, which in his experiments are not present.

Dr C. Augustus Simpson, Washington, D C I undertook this work in order to clear up the confusion which has resulted from the reports of iodin and quinin eruptions, which are cited as examples of anaphylaxis If we understand that true anaphylaxis depends on a presensitization of the individual with a protein, then it is obviously impossible for a chemical, alkaloid or a glucosid to perform this function

In regard to the question asked by Dr Heimann, I will say that I did not work with the pollen of the flower for two reasons First, the poison that causes the dermatitis does not reside in the flower or pollen, but is a product of the glandular hairs of the leaves, second, the poison can be extracted from the leaves by digesting them in absolute alcohol, which does not dissolve or extract proteins In view of the work of Wells and Osborne on plant proteins, I have no doubt that a true protein could be extracted which would naturally produce a true anaphylactic reaction in animals This, however, is not the object of this paper I have tried to show that the well-known specific susceptibility to the primrose (dermatitis) has no relation to anaphylaxis

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THE PREVENTION OF ENDEMIC TYPHUS IN CALIFORNIA

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AND
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During early civilization, typhus fever was the predominant disease, whereas typhoid was of secondary prevalence With the advancement of civilization, however, and the adoption of personal hygiene, typhus has receded On the other hand, with the increasing density of population and the resulting contamination of food and water supplies, typhoid has become pandemic Except under war conditions, epidemics of typhus are now rare, although the disease is endemic on the Great Plateau of Mexico, in parts of Ireland, France and Russia, in Algeria, Egypt, Hungary and certain provinces of the Balkan States The recent Serbian epidemic, still fresh in our memories, is an instance of war-borne typhus

TYPHUS IN EASTERN UNITED STATES

The three chief visitations of this disease to the United States occurred in New York in 1881 and 1882, and again in 1892 and 1893, and in Philadelphia in 1883 Sporadic cases have not been uncommon in our seaports Furthermore, it has recently been shown that the syndrome known as Brill's disease is in reality typhus fever In 1909, Dr Nathan E Brill reported 200 cases of an acute infectious disease of unknown origin observed by him in the wards of the Mount Sinai Hospital He had previously reported seventeen cases of the same disease The important phases of the disease are thus summarized by Brill [1]

> An acute infectious disease of unknown origin and of unknown pathology characterized by a short incubation period

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[1] Brill, Nathan E An Acute Infectious Disease of Unknown Origin A Clinical Study Based on 221 Cases, Am Jour Med Sc, April, 1910

(four to five days), a period of continuous fever, accompanied by intense headache, apathy and prostration and profuse and extensive erythematous maculopapular eruption, all of about two weeks duration whereupon the fever abruptly ceases, either by crisis within a few days or by rapid lysis within three days, when all symptoms disappear

When Brill's second paper appeared in 1910, Anderson and Goldberger,[2] of the United States Public Health Service had recently returned from the City of Mexico, where they had been making a study of Mexican typhus or "tabardillo" These investigators were impressed with the similarity between the disease described by Brill and typhus fever as observed by them in Mexico They were given the opportunity of drawing blood from a patient with Brill's disease in the wards of the Mount Sinai Hospital This was inoculated into monkeys One of these animals, after ten days incubation, developed a fever which reached its maximum six days later and fell by rapid crisis fourteen days after the rise began

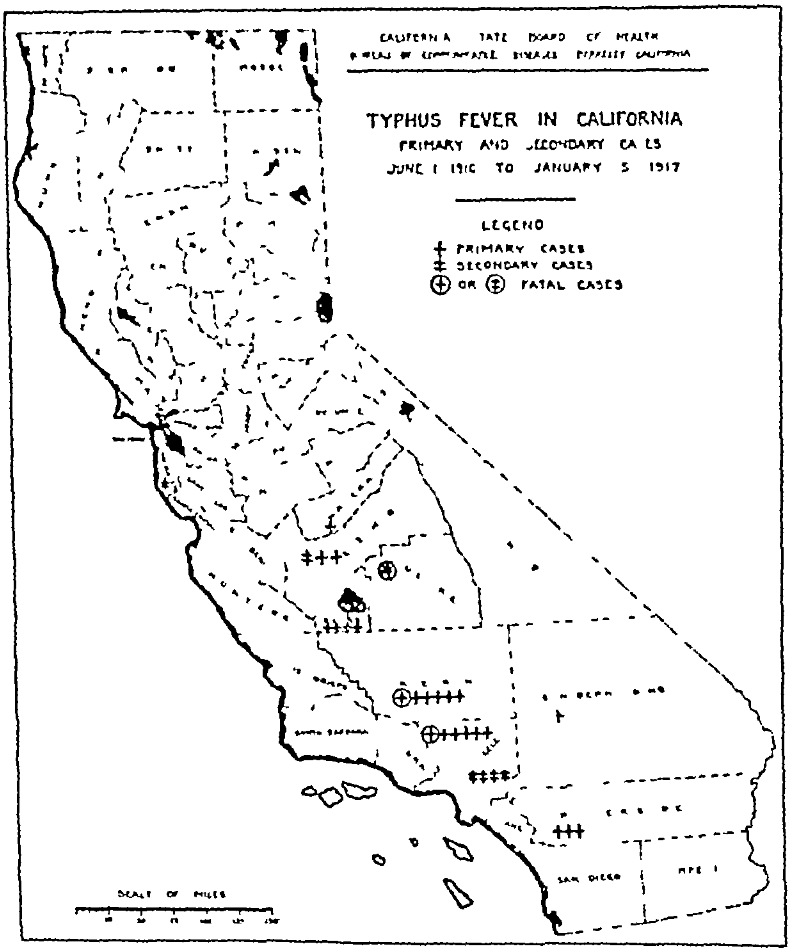
CALIFORNIA STATE BOARD OF HEALTH
BUREAU OF COMMUNICABLE DISEASES BERKELEY CALIFORNIA
TYPHUS FEVER IN CALIFORNIA
PRIMARY AND SECONDARY CASES
JUNE 1 1916 TO JANUARY 5 1917
LEGEND
+ PRIMARY CASES
‡ SECONDARY CASES
⊕ OR ⊕ FATAL CASES
SAN DIEGO
SCALE OF MILES

Fig 1—Location of primary and secondary cases of typhus in California

To determine the relationship of typhus fever to Brill's syndrome, these workers tested the susceptibility of animals that had recovered from Brill's disease to Mexican typhus, and the converse of this It was found that an attack of Brill's disease in the monkeys conferred on them immunity to Mexican typhus, and that Mexican typhus conferred on them immunity to an attack of Brill's disease It was thus shown that Brill's disease, so called, and typhus are identical, and since the endemic typhus of New York, with which Brill worked, was regarded as of European origin, it was concluded that the typhus fever of Europe and that of Mexico are identical

Cases of continued fever of more than six to seven days' duration were taken from the records of the Massachusetts General Hospital, and from this investigation Roger Lee concluded that Boston and vicinity gave a ratio of one case of typhus to forty-seven of typhoid, a proportion probably prevalent in many of the Eastern coast cities In 1912 there were thirty-six cases of typhus treated at the Mount Sinai Hospital and nineteen at the Jewish Hospital Moreover, cases were reported as far west as Chicago and Milwaukee During 1911 and 1912, J E Paullin[3] observed seven cases of typhus in Atlanta which were reported by him With a more accurate identification of this disease it has become evident that it has not disappeared from the United States, but, on the contrary, it has been present more or less continuously, especially in the large Eastern cities, since the epidemics of the eighties and nineties

TRANSMISSIBILITY

In the latter part of 1909, Nicolle infected an African ape with the blood drawn from a human patient with typhus[4] Shortly after this announcement he reported the successful transmission of typhus from an ape to a monkey by the bite of a louse[5] From the epidemiologic conditions which prevailed in Tunis, he was able to rule out the flea and the bedbug as carrying agents In February, 1910, Anderson and Goldberger[6] reported the transmission of typhus from a human case to a monkey by means of the body louse Other experiments with the flea and the bedbug were negative, and those with the head louse—*Pediculus capitis*—though suggestive, were not conclusive During the same year Rickets and Wilder,[7] in two experiments, transmitted typhus to a monkey by the bite of the body louse In one instance the virus was transmitted from man to monkey, in the other from monkey to monkey Furthermore, these investigators infected a monkey with typhus through the introduction of the abdominal contents of infected lice through small incisions The achievements of Nicolle, and the confirmation of his findings by other workers, have demonstrated the mode of transmission of typhus fever and made plain the practical methods of preventing the disease These, when intelligently applied, have worked remarkable results

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[2] Anderson John F and Goldberger Joseph The Relation of So-Called Brill's Disease to Typhus Fever, Pub Health Rep Feb 2, 1912 p 149

[3] Paullin, J E Typhus Fever in Atlanta, Ga Pub Health Rep, Jan 10, 1913

[4] Nicolle, C Reproduction experimentale du typhus exanthématique chez le singe Compt. rend Acad d sc 1909 **149**, 157

[5] Nicolle C Comte C, and Conseil, E Transmission expérimentale du typhus exanthématique par le pou du corps, Compt. rend Acad d sc. 1909 **149**, 486

[6] Anderson John F and Goldberger Joseph On the Infectivity of Tabardillo or Mexican Typhus for Monkeys and Studies on its Mode of Transmission, Pub Health Rep 1910 **25**, No 7

[7] Ricketts H T, and Wilder Russell M Further Investigations Regarding the Etiology of Tabardillo, Mexican Typhus Fever The Journal A M A, July 23, 1910, 309

Thus, according to Nicolle, in 1909 there occurred in Tunis 838 cases of typhus fever, but in 1912, after efforts had been put into effect to control the disease in the light of recent research, there occurred only twenty-two cases The only prophylactic measure resorted to was the destruction of lice found on the patient and his clothing and on persons and clothing in the vicinity of the patient suffering from typhus The successful campaign of the American Red Cross, under the leadership of Dr Richard P Strong, against typhus among the Serbian troops by the use of the coal oil bath and the steam sterilization of clothing, is a remarkable achievement based primarily on the results of Nicolle's original investigations

That the body louse is the transmitter of typhus has received ready support from students of the epidemiology of this disease The spread of typhus presents all the characteristics of an insect-borne disease Typhus fever prevails in epidemic form only in overcrowded, filthy surroundings To quote from Hirsch, "The history of typhus is the history of human wretchedness"

TYPHUS IN CALIFORNIA

In the spring of 1916, it was reported that in Mexico thousands were afflicted with typhus fever The civil war in that country, with its accompanying wretchedness, had led many of the inhabitants to emigrate to the United States California had been free from typhus for years until the summer of 1916, when there occurred twenty-four cases, twenty-one of which were investigated With the exception of one case, all the patients were of foreign birth and tongue, making it difficult to obtain accurate data concerning their subjective symptoms

In general it may be said that prodromal symptoms were absent or insignificant In about half the cases the fever was ushered in by a chill The rise in temperature was rapid, reaching its height (from 103 to 105 F) about the third day Mild delirium, muscular weakness and intense headache were early symptoms With the rise in temperature, the face became flushed and the conjunctivae injected, developing later into conjunctivitis There was no coryza or sore throat, hemorrhage from the nose and ears occurred in one case, and that late in the disease A mild cough and moist bronchial râles were not uncommon early symptoms As the fever reached its height, there appeared the typhus rash on the abdomen, then on the chest, back, arms, thighs, forearms and legs Within thirty-six hours it was fully out and remained until recovery or death The spots varied in size, from one tenth to one half inch in diameter They were irregular and had a fairly distinct outline, but were not perceptibly elevated During the first few days the rash may be referred to as a mulberry rash, and it will disappear on pressure, this later becomes a darkish-brown maculopetechial rash, and does not disappear on pressure As shown by von Franckel, the characteristic exanthem is primarily a periarteritis which leads to stenosis and by thrombosis formation to circumscribed disturbances of the circulation, and to interstitial hemorrhages which convert the inflammatory reseolae into petechiae The interstitial hemorrhages prevent the disappearance on pressure of the typhus spots The fever reaches its maximum in about three days, remaining elevated at from 103 to 104 F without marked morning remission for about fourteen days, at the end of which time it falls by crisis or rapid lysis As stated by Dr C C Pierce of the United States Public Health Service, "the most dependable symptoms are the rash, headache, bronchitis, mental confusion, dry coated tongue, nervous tremor and continuous fever" From eight of the patients in the cases investigated, blood was drawn and injected into guinea-pigs As in five of the cases blood was drawn after the crisis, no temperature was produced in the animals inoculated from these In the other three the guinea-pigs developed, at the end of an incubation period of from ten to twelve days a temperature of several days' duration All the strains of typhus fever so isolated were carried through four generations

The disease is not fatal in guinea-pigs, an elevation of temperature and slight indisposition are the only signs of illness We have observed that typhus fever produces no distinct pathologic condition in guinea-pigs such as is found in Rocky Mountain spotted fever In our laboratory strain of spotted fever, isolated from the Ventura County patient of July, 1916, and carried through the eightieth generation at the State Hygienic Laboratory, the following lesions are noted enlarged axillary and inguinal lymph glands, swollen spleen, and in males, orchitis with occasional superficial necrotic areas

The eruptions of these two diseases, more especially the character and development of their skin lesions, are very similar, and in the absence of the chief aid in differential diagnosis — namely, a definite history of a louse or a tick bite — the results obtained through guinea-pig inoculations will clear up the diagnosis

Early in the spring of 1916, typhus fever began to appear in California among newly arriving Mexican immigrants employed in railroad section camps From June 1 to Oct 1, 1916, there had occurred in California twenty-six cases of typhus, with one fatality Five of these cases were secondary, and all, with the exception of two, were among railroad employees Owing, however, to the increasing number of cases in five southern counties of California, so that during September alone there were reported fifteen cases, the state board of health viewed with apprehension the possibility of extension of typhus fever from these immigrants to the larger cities where it might become endemic The situation began to call for more intensive control measures to prevent the disease from becoming a menace to the California centers of population The expediency of this procedure is shown by a study of the disease in Eastern cities, where endemic typhus has existed since the early eighties It was necessary, however, before enacting regulations, to review the situation as a whole, naturally, methods employed for its control would have to depend on conditions peculiar to this state As already stated, most of the cases were primary, they had occurred chiefly among recently imported railroad Mexican section laborers, and there had been five secondary cases Furthermore, there was an increasing number of cases each succeeding month The appearance of the secondary cases made it evident that the transmitting agent of the disease (the body louse) was prevalent in section camps Actual investigation of forty-four camps showed a 60 per cent head louse and a 35 per cent body louse infestation This condition among immigrant Mexican laborers and their families was directly due to the unhygienic living conditions in war ridden Mexico whence they had come Up to October, the state required merely the usual quarantine measures on all reported cases and their contacts With these regulations in force however, the number of typhus cases continued to increase so that in September alone there were fifteen cases As Mexico was the only available source of labor, it was decided to urge the cooperation of the railroads in applying modern preventive measures in the control of typhus rather than to put in force the older procedure of prohibiting the importation of such labor

The situation was presented to the railroad authorities and appreciating that modern science provided an alternative to a ban on labor, they heartily cooperated in carrying on the special typhus control regulations These included first, the enforcement of louse-eradicative measures in the section camps, second, the establishment of observation camps, and third, the reporting to the state of all new arrivals from Mexico[8] The regulations provided for bunk house sanitation weekly sterilization of bedding and clothing, gasoline saturation of all footwear, and a weekly bath with equal parts of kerosene and warm water for all camp occupants, this to be followed by a complete change of clothing, these measures to be enforced and supervised by the foreman of each section gang

The deputizing of the section foreman as the local supervisor of these control measures was made because he was at all times a resident at the section camp, and therefore cognizant of the extent to which the delousing regulations were being complied with by the section laborers Moreover, the large number of camps and the wide area over which they were scattered made the matter of even a single visitation by a delousing train impracticable from the standpoint of expense, efficiency and time The section foreman control method had, therefore, the advantage that all the section gangs could be deloused, not only immediately, but frequently, the foreman being directly responsible for the enforcement of the regulations The railroads made this matter not merely one of expediency but of educative value as well, by printing the regulations in Spanish and in English, and by posting them in each section camp

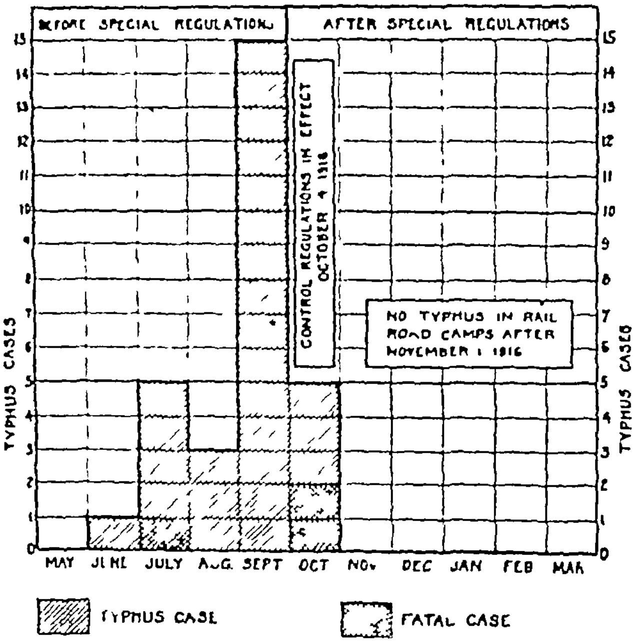

Fig 2 —Incidence of typhus in railroad camps in California and *results following enforcement of* special state control regulations

In the observation camps all newly arriving Mexicans were kept for a period of fifteen days — the incubation period of typhus fever These camps consisted of a dozen pitched tents or of box cars, one guard tent, two foreman's tents, a box car or extra large tent for bathing and delousing purposes, a water car, two commissary cars and three or more modern, well screened, well ventilated toilets Two or more guards were stationed at such a camp During the first month there were a number of escapes from these camps, whereupon the railroad companies provided railroad police guards, thus preventing the scattering of possible typhus contacts From Oct 15, 1916, to March 1, 1917, a total of 2,355 men were detained and deloused in the railroad observation camps The several importing companies furnished the state, from El Paso, the name of each immigrant and the observation camp to which he had been sent The railroads made a similar report relative to the date of his arrival at and release from this camp

The purposes of these observation camps were two first, to centralize all possible imported typhus cases, second, to provide a place where the railroads' Mexican immigrants could be deloused before being distributed along the lines of the railroad traffic It should also be appreciated that the several railroads within the state at once lent their hearty cooperation in carrying out the delousing regulations in the section camps, and in addition, each railroad depending on imported labor maintained an observation camp, although such maintenance was a difficult problem from an operative standpoint

It will be noted that these observation camps, established in October, 1916, served the same purpose as do now the federal delousing stations which were put into operation Jan 1, 1917 When in view of these control measures instituted at the border by the United States Public Health Service, the advisability of modifying or abolishing the special regulations was suggested, it became necessary to determine whether or not they had served their purpose — that of minimizing louse infestation in the section camps Obviously, should a patient with typhus in the incubation period — although freed from lice at the border — enter a louse-infested camp, his infestation would result in infected lice and the possibility of secondary cases

No further cases of typhus having occurred in railroad section camps after Oct 25, 1916, about March 1, 1917, there were reinspected thirty-two section camps, occupied by 824 individuals Among these, less than 1 per cent showed evidence of head lice, while no body lice were found The observation camps were also inspected, and the remarkable cleanliness of some very recent arrivals therein, as contrasted with those imported prior to Jan 1, 1917, evidenced the value of the efficient delousing work done at the border by the United States Public Health Service

Up to the time of border control, the state's campaign necessitated the following field work twenty-four field investigations covering the examination of 518 railroad Mexican section camps, and the inspection of 5,042 men, women and children

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[8] Cumming James G Special Regulations for the Control of Typhus in Railroad Section Camps, Month Bull California State Board of Health October 1916, p 202

In comparing the typhus situation before and after the institution of the special control regulations, the records showed that from June 1, 1916, to Oct 1, 1916, four months, there had been twenty-four cases, of these, five secondary, while in the ensuing period from Oct 1, 1916, to March 1, 1917, five months, there had been only seven cases, of these, one secondary case Five of these had occurred in October, and the remaining two were nonrailroad cases direct from Mexico Among the thirty-one cases there had been three deaths, giving a mortality of 9 7 per cent

The necessity for the control measures taken in October by the state is shown by the increase in the typhus incidence, for, while in June, July and August there had occurred only nine cases of typhus, the record for September alone was fifteen cases The effectiveness of the state's control measures is clearly demonstrated in that shortly after these measures were applied the typhus incidence dropped to five cases in October, none in November, one in December, and one Jan 4, 1917, the latter two being the nonrailroad cases previously referred to Since Jan 4, 1917, no case of typhus fever has been reported in California In October, 1916, there was louse infestation to the extent of 35 per cent for *Pediculus vestimenti* and 60 per cent for *Pediculus capitis,* while the March 1, 1917, reinspection showed no body lice and only 1 per cent head lice It was therefore concluded that

1 Louse infestation in railroad section camps had been reduced to a minimum

2 All the railroads should be requested to continue their supervision of camp hygiene

3 The federal delousing work at the border made no longer necessary the maintenance of observation camps as delousing stations

4 Imported sporadic cases of typhus might occur, but, under present conditions, there should be no secondary cases

5 The special typhus regulations for railroads had accomplished their purpose and were therefore no longer necessary

This received the approval of the state board of health, and the regulations were accordingly abolished at its meeting in March

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Acupuncture Vaccination Method.—According to Dr H. W Hill (*Am Jour Pub Health,* March, 1917) acupuncture vaccination is thus performed The arm is washed with soap and water, then with alcohol and finally with ether A small drop of vaccine is deposited on the clean surface The vaccinator's hand is closed on the arm from behind so as to draw the skin tight in front, and a sewing needle point, held slanting nearly parallel with the arm, is pressed against the skin through the drop of vaccine Then it is that that one-thousandth inch of the point snicks through the upper layer of the skin, carrying the vaccine with it. The needle is instantly withdrawn, and similar punctures are made beside each other until a dozen punctures are made in the space of one-sixteenth square inch or less With a bit of gauze the surface vaccine is removed Three sets of punctures are advised at the angles of a triangle, each side of which is 1 inch A strip of gauze may be pinned to the inside of the shirt sleeve, no other dressing should be used In persons who are still protected by a former vaccination or by having had smallpox, the punctured surface will redden, swell slightly and become somewhat itchy for a day or two immediately following the puncture. This is the anaphylactic reaction In persons not so protected, the puncture spot will redden and swell in four or five days, and a smooth, pearly button about the size of a large pea will arise, which in about ten days will separate, leaving a small round scar

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LYMPHATIC-NODULAR KERATOCONJUNCTIVITIS (PHLYCTENULES) *

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Phlyctenular keratoconjunctivitis has always impressed me as a distinct ocular evidence of a systemic dyscrasia, in other words, these nodular exudates indicate a weakened, anemic constitution The impoverished patient requires more than general tonics, something more definite and specific in the line of treatment As an increased heart beat would be suggestive of some abnormality, so I take this eye condition to be a symptom of some abnormal constitutional condition As interstitial keratitis is a manifestation of inherited syphilis, these nodular lymphoid infiltrates are evidences of a strumous diathesis or tuberculosis — if not tuberculosis, then something very similar, bearing in its symptomatology a striking resemblance to tuberculosis These nodular exudates are warnings, and not outspoken evidences of tuberculosis The absolute certainty, as clinical evidence of it, must remain unanswered for the present The proof is not sufficient to warrant such an assertion, yet in the large percentage of these cases it distinctly gives evidence of an intimate association with tuberculosis We all know of tuberculous cases undergoing spontaneous arrest, and these may be some of the cases that give symptoms accompanying tuberculosis but not made manifest by our present methods of examination Of course further evidence must be forthcoming, but I believe a proper interpretation of this local sign will be a great aid to us in saving and restoring vision

Since the vision which has been lost depends so much on the location of the resulting corneal opacity, it is not possible to generalize in regard to it

It is by a thorough and complete physical examination of all cases showing these nodular lymphoid deposits on the corneoscleral border, especially when ulcerating, that we can get some evidence of tuberculosis in one of its many manifestations In some of the thirty-nine cases which form the basis of this study we have distinct and clear evidence of tuberculosis

I would not style the nodules tuberculous simply because giant cells are seen in some of their sections If organisms are found they are a secondary infection, due to the lymphoid cellular exudates breaking down This nodular cellular infiltrate is a manifestation of a disease and not the cause of disease There is an underphysical tone, a latent tuberculosis, that causes nodular infiltrates to appear on the corneoscleral border To me it is an exhibition of a tuberculous condition or one very closely allied to tuberculosis — call it scrofula

In seven of the thirty-nine cases, pulmonary tuberculosis was found I hold that when tuberculosis is fully established we shall not find this eye condition These nodular exudates are seen only in a beginning tuberculous infection and not when tuberculosis is fully established It is more of a manifestation of tuberculosis, especially in childhood, though we saw these cellular infiltrates in four cases in adult life

In sixteen cases we found some form of tuberculosis Fourteen of the patients had tuberculous adenitis

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* Read before the Section on Ophthalmology at the Sixty Eighth Annual Session of the American Medical Association, New York, June, 1917

One of the sixteen had tuberculous wrist joint, one had a tuberculous hip

Eight of the patients, while not having positive pulmonary signs, had suggestive lung involvement, as apical moist râles, impaired notes, dull percussion, and spotty infiltrates One had an indurative mediastinitis Three, from roentgenographic reports, showed upper apical infiltration One had tuberculous arthritis

Thirty-two of the patients had positive von Pirquet reactions, fifteen of them +, ten + +, four + + +, and two had a slight positive reaction

Dr J H Elliott[1] of Toronto says, "It has been our experience that every child that has *phlyctenular conjunctivitis* has given a tubercular reaction"

In four of the cases the tubercle bacillus was found in the sputum Three of the patients were sent to the state sanatorium for tuberculosis

Eighteen of the patients had adenoids and diseased tonsils The interesting point about these cases was the fact that in microscopic sections the tubercle bacillus was found in six cases

The eczema seen in these cases is caused by the profuse lacrimation, and the constant epiphora is the irritant to the skin and nares Nasal obstruction aids the eczema and the excoriation of the skin surfaces Improper nasal respiration in the upper air passages, caused by congestion and intumescent turbinals, prevents the proper flow of tears to the nasal cavity The mucous membrane of the tear duct and its sac becomes swollen and the lumen is narrowed, so that the tears do not have proper drainage to the nose The eczema is a secondary factor, an association and not a cause of the eye condition

Thirteen of the patients had a negative Wassermann reaction Two had positive reactions, one of the latter patients, aged 20, had a nodular exudate on the conjunctiva with slight photophobia, lacrimation and a negative von Pirquet reaction Roentgenoscopy revealed infiltration beneath both clavicles Because of the negative signs of a tuberculous involvement, and of a positive Wassermann reaction, the patient was placed on antisyphilitic treatment The condition of the second patient, aged 25, was similar to that of the first, and the same treatment was given

In seven of the cases some member of the family had tuberculosis, four in parents (three paternal and one maternal), two in sisters, and one in a paternal uncle

The age of these thirty-nine cases varied from 1 year to 30 There were thirty females and nine males Eighteen patients were white and twenty-one colored The cornea and conjunctiva were involved in thirty cases Corneal ulceration was present in eighteen The conjunctiva was involved in nine cases Both eyes were involved in twenty-one cases, the right eye twenty-nine times and the left eye eleven times

When local treatment was required for corneal ulceration we used atropin in 1 per cent solution and protective glasses When there was no corneal ulceration, sodium borate drops were ordered

I have carefully gone over the cases and itemized each particular case for study After the eye was seen and diagnosis made, the patient was referred to the Phipps Clinic for Tuberculosis for a physical examination and a skin test. It is needless for me to say that the work in that department is so thorough that the diagnosis will not be questioned In fact, when one is working on a special subject, sometimes the enthusiasm gets the better of discretion, and one is liable to err The reference of these cases to another department is bound to result in more accurate reports, and the results in the long run will be more valuable

With their varied experience, the physicians in this clinic are unusually competent to make physical examinations and are especially skilled in giving the tuberculin injections The dosage, temperature, pulse and respiration are followed more accurately It is important to know how to administer tuberculin It is a *dangerous drug*, and unless used skilfully, more harm than good will come from its administration The minimum dose was 0 000001 gm , to the small dose often repeated I think is due the success in giving tuberculin The tuberculin used was the bouillon filtrate and was made in the Phipps Clinic for Tuberculosis I feel confident that had it not been for their skilled and expert administrations of tuberculin, the results would not have been what they are Unless the ophthalmologist has had experience in this line of work, it is better to have the work done by men who are doing that kind of work every day, they are more capable of judging the proper dosage, and the interval in time

At least forty injections are necessary in an average case, and prolonged tuberculin injections a necessity for good results Any rise in temperature is an indication of too large an amount of tuberculin, and with any redness or soreness at the point of injection, the dose should be diminished Small doses often repeated constitute the treatment, this is so important that I wish to lay special emphasis on it

In some of the thirty-nine cases we had a positive von Pirquet reaction, but the physical examination showed "no active pulmonary signs", nevertheless we tried tuberculin to see if it improved the ocular condition We were surprised in seeing the nodular exudate disappear To satisfy the patient, sodium borate drops were ordered This improvement in the patient I attribute to the tuberculin These cases show no manifest tuberculosis, but probably have some latent form If tuberculin improves the condition, there must be some association between the nodular exudates and tuberculosis

When the patient was under tuberculin treatment, relapses were very few, in fact, there was only one distinct case, and that was very slight. When other methods were employed, recurrent attacks were often seen

Some of the patients returned for observation, the eyes appeared in good condition, there were no active inflammatory signs, and the general remark of the patients was that they were much improved

It is necessary in some cases and at certain intervals to give another course of tuberculin injections By this means we are more than able to hold the corneal ulceration in check and prevent opaque areas through the cornea I feel confident that with the proper administration of tuberculin, accurate taking of pulse, temperature and respiration, and the general condition kept under surveillance, we can get good results from this way of handling the cases It is far from perfect, but better than giving general tonics, with no special medicine given for a special ailment The word "tonic" would not carry far if one were questioned why and for what reason the tonic was given

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[1] Elliott, J H Tr Natl Assn Study and Prev Tuberc, 1916 p 45

Norman[2] says

> Under tuberculin treatment the process of ulceration was arrested very much more quickly than by ordinary methods alone, and the resulting area of corneal opacity was correspondingly diminished Another advantage is a remarkable freedom from relapse, but to ensure this we find it necessary to give the full course of fourteen injections in all cases

The eyes were carefully observed and notes made after each injection, stating progress, or retrogression, or whether the eye was quiet

The Department of Laryngology handled the cases of adenoids and tonsils This removal was a great aid in the treatment The examination of the adenoids and tonsils for microscopic diagnosis was thorough Finding six cases with tubercle bacillus I think is exceptionally interesting Their interest in the cases made the examination thorough and complete Six cases were found positive for tubercle bacilli in the sections

SUMMARY

I am not claiming this manifestation as a certainty of tuberculosis, but that in a majority of cases, if we use all methods of diagnosis we will find some evidence of symptoms that go with tuberculosis In the seven cases showing active pulmonary signs (four of the patients having the tubercle bacillus in their sputum) it is satisfying to know that we aided the patients in getting the proper treatment

The eye manifestation will at least make us think of a tuberculous involvement and will aid us in trying to check a tuberculous tendency Tuberculin injections when properly given are a great aid in our treatment I have outlined eleven distinct points

1 The nodular cellular lymphoid deposits, ulcerative and nonulcerative (phlyctenules) of the corneoscleral border are local eye manifestations of a constitutional dyscrasia, strongly suggestive of tuberculosis—if not tuberculosis, then something very closely associated, bearing a striking resemblance in its symptomatology to tuberculosis

2 While the microscopic sections of these nodules show giant cells, it would not follow that the nodules are tuberculous, but rather indicate that the cellular infiltrate is a manifestation of the disease and not the cause

3 The treatment has been hygienic and sanitary sodium borate drops in nonulcerative case, and in corneal ulceration 1 per cent atropin and protective glasses, tuberculin bouillon filtrate given in doses varying from 0 000001 gm to 15 mg At least thirty-five to forty treatments are demanded, and as high as fifty or more Prolonged tuberculin treatment is important, and in doses averaging 0 0001 mg I think at stated intervals it is advisable to renew tuberculin treatments During tuberculin treatment eyes rapidly improve, and there were no recurrent attacks with the exception of one case, which was slight Temperature, pulse and respiration were carefully watched Any rise or tenderness and redness at the point of injection would indicate too strong a dose The patient should *sustain toxins given* with *no reaction*, this is important

4 Of the thirty-nine patients seven had pulmonary phthisis

5 Sixteen had some form of tuberculosis as cervical adenitis or tuberculous bone

6 Thirty-two had a positive von Pirquet reaction

7 Eighteen had adenoids and diseased tonsils, the tubercle bacillus was found six times in microscopic sections

8 Four showed tubercle bacilli in their sputum

9 Eight physical examinations were suggestive of some form of lung involvement

10 Thirteen had a Wassermann test with eleven negative

11 Seven had a member of their family with tuberculosis

322 North Charles Street.

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[2] Norman, A C Tuberculin in Ophthalmic Practice, Hospital, London, 1915, 58, 9

THE PATHOGENESIS OF OPHTHALMIA ECZEMATOSA

A PRELIMINARY REPORT *

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The acute interest of the profession in phlyctenular disease has been maintained for some time past, for two principal reasons first, because the disease itself offers so much calculated to attract continued attention — its prevalence, complications, sequelae, and frequent recurrences — and second, because the problem of its pathogenesis is still *sub judice*, no one claim having succeeded in gaining a firm foothold in science

As long as the etiology of ophthalmia eczematosa remains obscure, treatment will be empiric Had we succeeded in accidentally finding a specific for the cure of phlyctenular disease such, for example, as we have in quinin for malaria and in mercury for syphilis, the fact that we have no absolute knowledge of the real causal factor would be only of academic interest, but, as will be seen, we have not been fortunate in discovering a specific as yet, and hence any investigation aimed at the finding of a cure of this troublesome malady must be in the form of a search for the causal factor of this form of ophthalmia

Ophthalmologists throughout the world became much interested when a few years ago the teaching was promulgated that ophthalmia eczematosa, or phlyctenulosis, is due to either the tubercle bacillus or its toxins Naturally the recognition of tuberculosis in some form as the cause of phlyctenular disease led to the application of a supposedly rational therapy The entire antituberculous therapy, as tuberculin, ferruginous tonics, fresh air and overfeeding, was utilized against this disease, but unfortunately with no special result The fact that the von Pirquet and other cutaneous tubercle tests yielded a surprisingly large number of positive reactions justified that therapy, but the comparatively insignificant clinical results certainly prove practically conclusively that the etiology of ophthalmia eczematosa is not tuberculosis

The only other important theory which has been advocated by competent observers is that the disease is due to intestinal fermentation As will be seen later on, therapeutic experiments to confirm this hypothesis have proved negative

It seemed to me that in this era of advanced pathology the inability to demonstrate the underlying cause of any form of ophthalmia must stand out as a reproach and that some light must be reached if a systematic search for it be made That such a road is not devoid of difficulties is known to every one who has tried to secure diagnostic laboratory data of this disease Might it not be that perhaps in this case the microscope and serologic tests are not the signs of the proper road? I did not answer that question when, a few years ago, utilizing a clinical material which exceeds 500 patients, I undertook to make an inquiry into the cause of ophthalmia eczematosa

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* Read before the Section on Ophthalmology at the Sixty Eighth Annual Session of the American Medical Association, New York June, 1917

In presenting to the profession the results of this investigation no claim is made that this report is exhaustive nor is it the intention to submit a detailed recapitulation of the scientific labors on this subject available in contemporaneous literature, but the mere narration, it is believed, is sufficiently convincing to show that the evidence, new though it be, is based on undisputable facts

To begin with, the doubt of the tuberculous origin of the disease, justified by the repeated observation that patients treated for tuberculosis fared no better than those given other routine therapy, should cause the elimination of this theory from all calculations, but this, too, was included in the projected investigation

Surgical therapy, and the use of vaccines and antitoxins have shown so conclusively negative results that these early were eliminated, not only as curative agents, but also as measures to indicate the causal factor or factors

A plan was adopted to try with great care any drug at all likely to benefit the disease itself or at least its symptoms, on the presumption that if a really valuable agent be found an explanation of its rationale could possibly be arrived at and the desired goal reached To prevent error, the routine practice of administering several drugs at one and the same time was abandoned, and each drug selected was studied singly Boric acid, argyrol, protargol, silver nitrate, zinc sulphate, yellow mercuric oxid, mercuric chlorid, ethylmorphin hydrochlorid (dionin), atropin and similar drugs were subjected to thorough and prolonged therapeutic tests It is evident that practically the entire ophthalmic, bactericidal and mydriatic armamentarium has been exhausted The result of this inquiry can be given in one brief sentence Not one of these drugs, with the single exception of atropin, had any real influence on the course of the disease The findings are based on control observations, namely, that the drugs named, atropin excepted, had identically the same therapeutic results as those seen from the application of placebos Atropin gave decided symptomatic relief, and in all probability was not without some curative influence

It is interesting to note, however, that while the corneal phase of this disease does not respond to our classic bactericidal treatment, true corneal ulcer becomes clean and covered by epithelium, but this is as far as one can attain, for it continues to remain in a state of irritation, not unlike a nerve ending disturbance, similar to herpes zoster ophthalmicus, but milder than in this condition until the clinical entity has run its course

In view of these results, all drugs were discarded and topical treatment restricted to the use of atropin irrespective of whether the cornea, conjunctiva or limbus was involved

The evidence of the ineffectiveness of topical therapy clearly shows that the condition under consideration is not a localized disease, but a local manifestation of a systemic disturbance The finding of the true underlying systemic cause, therefore, became the most important problem The question which presented itself was by what method the desired result might be attained, since the aimless employment of the entire diagnostic armamentarium could have led only to confusion Physical examination of the patients yielded the following data, which gave some index as to the best manner of search

The greatest prevalence of the disease is between the second and twelfth years of life Patients under 2 years of age are rarely seen Seventy-five per cent of the children were fairly well nourished It is noteworthy that some of the most severe cases seen were in plump, ruddy children, to all appearances presenting an excellent degree of health

This does not bear out the assertions of certain authors that phlyctenular disease is usually observed in anemic children with what is best described as a tuberculous habitus The sexes were equally represented The majority of the patients belonged to the poorer classes, in which the families are large, and in which the environment from a hygienic standpoint is not wholly bad, except that individual parental control is exceedingly limited, the children being left almost entirely to their own resources Adenopathy was manifest in the submaxillary, anterior and posterior cervical regions, the lymph glands being plainly discernible on palpation but rarely painful on pressure The tonsils and adenoids were frequently enlarged and diseased Skin and hair were characteristically dry Erosions around the nostrils and behind the ears, especially where the two skin surfaces come in contact were seen frequently These erosions, which proved to be an intertriginous eczema, were often observed also in the inguinal folds, especially in very young children Seborrhea of the scalp was not infrequent in the same class of children A history of cough and loss of weight was seldom secured Urinalysis, with special reference to the presence of albumin, sugar and indican, invariably gave negative results

The routine eye examinations for this class of cases revealed nothing unusual as regards the clinical picture of the conjunctiva, limbus or cornea, and presented no statistical data of special significance Could these manifestations be explained by tuberculosis? The most thorough search to sustain such a diagnosis by all available clinical agents proved futile While there is no lack of ophthalmologists who still believe tuberculosis or tuberculous toxins to be the cause of phlyctenular disease, there are authorities who have emphatically rejected this theory

Macnab,[1] quoting Axenfeld, says

> Axenfeld has thoroughly disposed of the contention that phlyctenules are true tubercular lesions, and Mueller, in a series of transplantation experiments in which fresh phlyctenules were introduced into the anterior chamber of rabbits, failed in every case to produce a typical tubercular lesion

John W H Eyre,[2] hunterian professor and examiner in bacteriology of the Royal College of Surgeons, in his hunterian lecture on tuberculosis of the conjunctiva, says

> That many of those subject to phlyctenules give evidence of the existence of tuberculous infection in some portion of their tissues is no evidence that the conjunctiva lesion is also tuberculous, and until some responsible observer has demonstrated the presence of the tubercle bacillus in an extended series of phlyctenules, I see no valid reason for regarding

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[1] Macnab Angus Diseases of the Cornea New York William Wood & Co 1907

[2] Eyre J W H Lancet London 1912 1, 1319

phlyctenulosis of the conjunctiva per se as a form of tuberculosis of the conjunctiva

L V Hamman,[3] chief of the Phipps Tuberculosis Dispensary of Johns Hopkins Hospital, and co-author of Hamman and Wolman's work, "Tuberculin in Diagnosis and Treatment," says that if phlyctenulosis is a tuberculous manifestation it certainly some time should show the presence of the tubercle bacillus, and that the tuberculous toxin theory is fast losing ground

George S Derby[4] of Boston, who has treated a great many of these conditions with tuberculin, says

> I have had considerable experience with tuberculin in the treatment of phlyctenulosis, and I feel doubtful whether any of these cases have been much benefited by it

Brown and Irons[5] of Chicago recently reported on 100 cases of disease of the uvea, and in only two cases did they have a focal reaction with the subcutaneous test This demonstrated the rarity of tuberculosis of the eye

In common with the most universally accepted teachings, I have long abandoned the use of the skin test after the second year of life In patients under that age only 35 per cent. gave a positive reaction, and that usually was a delayed local reaction, while the subcutaneous tests, which have been tried in a relatively small number of cases, rarely proved positive Therapeutically the topical and subcutaneous use of tuberculin proved without effect Tuberculosis as a factor in phlyctenular disease can therefore be absolutely set aside

Attempts to secure cultures from phlyctenules have not given satisfactory results, owing to the great difficulty in securing unmixed material from the papules even before they ruptured As a rule the same flora was encountered which is commonly found in all conjunctival sacs, namely, staphylococcus, pneumococcus, diplococcus, *Micrococcus catarrhalis,* xerosis bacillus and others Reliable workers have found the contents of unruptured phlycentules to be absolutely sterile

While syphilis suggests itself as a possible factor, though no one has so far seriously considered it, this can be eliminated, since in the available material no data for such a diagnosis were even remotely present

Finally, the removal of enlarged and diseased tonsils and adenoids for the purpose of influencing the ophthalmia, which had been strongly advocated some time ago, was subjected to a thorough test, but in spite of numerous radical enucleations no appreciable effect on the course of the disease could be demonstrated

There remains the theory of intestinal putrefaction, which even at the present time has many advocates The histories of all patients under observation show that their parents have seldom observed offensiveness of the stools I made the Obermeyer test for indican in twenty-five cases, but no trace of this was discovered in the urine This, however, need not be accepted as conclusive evidence for the absence of intestinal putrefaction Though intestinal putrefaction could not be demonstrated through urinalysis, a number of patients were treated on the assumption that the intestinal disturbances actually existed Suitable drugs, such as salol, calomel, acetylsalicylic acid, sodium salicylate, bismuth, sodium bicarbonate, liquid petrolatum and lactic acid bacillus either in pure bouillon culture, in tablet or in powder form, were administered, each single drug being subjected to a prolonged test

It is interesting to note that, of all of the drugs used, calomel appeared to produce the most favorable results This led to the adoption of an empiric routine, namely, atropin locally and calomel internally, as the most effective medicinal therapy

It may be added that for some time the favorable results obtained from this combination encouraged the conviction that intestinal putrefaction was the solution of the problem, and the tentative acceptance pointed to the next step to carry the treatment to logical finality through the addition of the appropriate dietetic measures

When the parents of the afflicted children were questioned, it was learned that fully 98 per cent of the patients consumed an excessive amount of carbohydrates, especially in the form of sweets At first I was inclined to pay scant attention to this feature Further questioning, however, elicited the statement that these very children had little desire for plain, nutritious food With a view of ascertaining whether or not this faulty diet had any decisive influence on phlyctenular disease, a practically carbohydrate-free diet was instituted in a series of cases as the single and sole method of treatment, excluding even the topical use of atropin, with the gratifying result that the children so treated did far better than with calomel and atropin alone Later medication and diet were combined with exceedingly satisfactory results The diet prescribed consisted of plain foods, as bread, butter, milk and eggs This dietary cannot be regarded as ideal, but was the best available for external reasons

These results were so striking that many interested colleagues who were familiar with this series of experiments admitted the striking improvements, but questioned the direct relation of the dietary to the favorable phenomena As I was convinced that the dietetic regimen alone and unaided was the principal cause of the favorable course of this disease, another series of experiments was made which left no room for further doubt A number of children whose affections had been under complete control were taken off the dietetic regimen, and given foods rich in carbohydrates Almost at once this disease reappeared with the acuity of a pronounced relapse These experiments were repeated at frequent intervals, and invariably yielded the same results

The experience became so convincing that whenever patients presented themselves with a relapse, faulty diet was assumed and invariably admitted Again and again the observation was made that relapses occurred when the parents ceased to exercise control over their children, enabling the latter to yield to the temptation to consume sweets Naturally the question suggested itself whether the dietetic error, shown to exercise a decided influence on the course of the disease, was to be sought in the carbohydrates per se, or merely in the sweets To answer this question, a control test was made in which ample doses of saccharin were administered as a substitute for the sweets It was now uniformly observed that this coal tar product did not in the least show any unfavorable influence on the ocular manifestations, proving conclusively that the carbohydrates per se must be held responsible Whether the unfavorable influence of carbohydrates is to be ascribed to faulty metabolism, or to a limited ability of assimilation of the carbohydrates, the excess probably undergoing chemical changes, which in turn yield toxic or irritating agents sufficiently effective to produce eczematous manifestations, must for the present remain an open question As regards the modus operandi of whatever processes are responsible, we must look to physiology for an explanation

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[3] Hamman and Wolman Tuberculin in Diagnosis and Treatment, p 209

[4] Derby, G S Disease of the Optic Nerve in Myxedema, The Journal A. M A, Sept 2[illegible], 1912, p 1045

[5] Brown and Irons Paper read before the Chicago Ophthalmological Society, 1916

It will be recalled that some time before the investigation was completed, the routine treatment of atropin topically, calomel internally and a carbohydrate-poor diet was found to yield the best results The rationale of the administration of calomel needs no defense, but this drug has no bearing on the favorable influence of atropin, the latter having proved effective even without calomel How can this be explained? Might it not be that in phlyctenular disease we have actually to deal with a part of the picture of exudative diathesis as propounded by Czerny,[6] and that the external phenomena are the result of irritability or hypertonia of the vagus system?

If this is the case, atropin, and not calomel, is therapeutically the drug best suited Accordingly, calomel was abandoned and atropin administered internally instead, in a series of cases, as suggested by the practice of Krasnogorski[7] and Leopold,[8] who prescribe a solution of atropin of 1 grain to the ounce of water in doses of 3 drops every three hours, and daily increase the dose by 1 drop until the physiologic effect is reached A number of patients were treated by this method without stopping the topical applications of atropin and restriction of diet The tolerance manifested by these children for this powerful drug is quite remarkable, some consuming as high as ⅓ grain daily

This form of treatment has now been extensively followed for the past eight months, and the results have been so greatly superior to any routine followed heretofore that, with the present experience as a basis, one cannot but say that absolute control of the symptoms of phlyctenular disease is assured by it It must be emphasized, however, that while atropin best controls the symptoms, permanence of therapeutic results will depend on a strict adherence to a suitable diet even long after all the symptoms have disappeared

It is realized that, in the presentation of the observations, workers accustomed to exact laboratory methods will find much that is not free from objections It is conceded that in the further investigation of phlyctenular disease laboratory workers can find many unexplored avenues for scientific research The investigation of the blood for the presence of acetone alone presents quite a problem Chemical studies of carbohydrate metabolism and neurologic study of the vagus system are other fields of interesting activity But the evidence so far submitted, clinical though it be, is too persistent and too extensive to be ignored

SUMMARY

1 Ophthalmia eczematosa or phlyctenular disease is not a true pathologic entity but symptomatic manifestation of a systemic disturbance

2 Tuberculosis, syphilis and sepsis can be excluded with certainty as causal factors

3 Phlyctenular disease is in all probability one of the expressions of vagus system irritability produced by some toxic agent, resulting from faulty carbohydrate chemism

4 Correction of the chemism by carbohydrate-free diet and control of the vagus hypertonia through the topical and internal use of atropin yield the best and quickest possible therapeutic results

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS GOLDBACH AND GOLDENBURG

Dr Richard J Tivnen, Chicago As to Dr Goldenburg's second conclusion, that tuberculosis can be excluded with certainty as a causal factor, I must differ with him Personally I believe that phlyctenular trouble is an ocular manifestation of tuberculosis, basing my opinion on a study of fifty cases treated with tuberculin diagnostically and therapeutically, as well as a study of the observation of numerous observers

Dr Goldenburg has not, in my opinion, submitted any precise scientific data nor does such research work and observation as he has presented warrant him, in my judgment in making such a sweeping positive assertion. It is admitted by those favoring the tuberculous theory that their contentions are far from being proved It is true, as Dr Goldenburg says that the tubercle bacilli have not been found in the phlyctenule that transplantation experiments with fresh phlyctenules into the anterior chamber of the eyes of rabbits have failed to produce a typical tuberculous lesion These are the two evidences which at this present time prevent the acceptance of the tuberculous theory It has been advocated that the failure to obtain success in these may be, perhaps due to the peculiar vagary of the phlyctenule itself, a peculiar stage of its development or a faulty method of identification Be that as it may however, precise clinical observation cannot or should not be ignored Certainly there is no class of patients who present clinically more significantly the stigmata of a tuberculous process than do these children with phlyctenular trouble The majority are poorly nourished, of minus resistance, come from bad hygienic surroundings, many present as Dr Goldbach and others have shown tuberculous foci in other parts of the body—the lungs, bones and glandular system Their phlyctenular trouble itself is, like most tuberculous processes, stubborn sluggish and prone to recur with each drop or remission in the body resistance. In addition to these clinical observations, tuberculin diagnostically and therapeutically does give a positive response in an astonishingly large number of cases and its therapeutic administration does, according to competent observers, give improvement

Dr Hunter H Turner Pittsburgh The perversion of carbohydrate metabolism or the tuberculous theory cannot explain the variations which characterize phlyctenulosis It is generally conceded that the ocular manifestation is secondary Where, then and of what character is the primary lesion? The fact that the process remains limited, in many cases, to only one and always the same eye, over a period of years, is proof positive of a tissue pathology, if not of the eye then of some contiguous structure which may be unilateral I am firmly convinced that the essential lesion in these cases is a low grade, chronic ethmoiditis with obstruction to drainage. The outer wall of the labyrinth forms the inner third of the bony orbit and is frequently defective Skillern says that it is common for sinusitis to occur in children during the course of measles, scarlet fever, pertussis influenza, pneumonia, etc, and that the resulting tissue devitalization favors a secondary infection which may persist indefinitely All ophthalmologists know how frequently the primary attack of phlyctenulosis follows these acute infectious diseases Skillern quotes Hajek to the effect that indiscretions in diet will produce an exacerbation of a chronic sinusitis The several elements which may influence unfavorably the local sinus lesion are diseased tonsils and adenoids, obstruction to ethmoidal drainage by deflected septum, spurs, or "tight" nostrils, which in children usually result from faulty eruption of the teeth, any general toxemia, of which the chief is intestinal in origin Hypertrophied pathologic tonsils and adenoids produce a stasis in the lymphatic flow with intumescence and bogginess of the intranasal and intrasinus mucosae and interference with sinus drainage. The

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[6] Czerny Exudativa Diathesa, Jahrb f Kinderh. 1905 p 199, Scrofulosa and Tuberculosa ibid 1909 p 529

[7] Quoted by Leopold (Note 8)

[8] Leopold J S Atropine Treatment for Exudative Diathesis in Infancy, Am. Jour Dis. Child, October 1915 p 288

B Exactly two hours later
1 Pass all urine and collect all of it in a corked bottle to which you will attach the label marked "First Day—Specimen 1"
2 Immediately afterward, drink a pint of water
3 Make a note of the time
4 Take two boiled eggs or poached eggs without salt, but take no other food
C Exactly two hours later
1 Pass all urine and collect all of it in a corked bottle to which you will attach the label marked "First Day—Specimen 2"

This is the end of the test for the first day

Write your name, address, and clinic number (the number on the card you received at the history room) on the labels and bring them any time before 3 p m on the same day

Similar detailed instructions are given for the other days, with the exception that the patient is told to take 25 gm of glucose on the second day, 50 gm on the third day, and 100 gm on the fourth day, dissolved in the first pint of water

COMMENT

During the past three and a half years this test has been used in over 100 cases of glycosuria There were of course instances of failure to collect all the urine, but surprisingly few In nearly all cases the results were quite definite, and we have not found a case in which a diagnosis based on the test has later proved to be incorrect

In Table 1 examples are given of cases in which a diagnosis of diabetes was made The characteristic common to all of them is the considerable relative increase in glucose excretion with increase in the quantity taken It is on this evidence of a relation between the extent of the failure to assimilate glucose and the degree of strain imposed on the assimilative function that the diagnosis is based

TABLE 1—EXAMPLES OF CASES DIAGNOSED AS DIABETES MELLITUS

Patient	Amount of Glucose in Urine			
	First Day	Second Day	Third Day	Fourth Day
	Intake=0 Gm Glucose Gm	Intake=25 Gm Glucose Gm	Intake=50 Gm Glucose Gm	Intake=100 Gm Glucose Gm
1	0 0	0 6	3 8	11 6
2	0 0	0 5	3 0	12 3
3	0 0	0 5	3 5	14 8
4	0 0	1 1	6 2	20 4
5	0 0	1 1	5 1	
6	0 2	1 2	2 0	4 4
7	0 1	7 5	9 4	14 8
8	0 9	5 8	14 5	22 4
9	8 2	18 1	29 9	49 7
10	4 3	20 5	25 7	24 4

In cases such as the first four we have cited, the patients are frequently without diabetic symptoms, and were asked to go through the test because sugar had been found in a routine examination of the urine These are instances of the early diagnosis of diabetes

Patients with diabetes in whose urine sugar is found on the first day of the test when no glucose is taken have almost always already developed such symptoms as polyuria and loss of weight There is great variation, however, in the severity of the symptoms Patient 6, for instance, had no symptoms, although in Case 7 they were very pronounced In Case 6 there was considerable doubt in making a diagnosis of diabetes The increase in the amounts of sugar excreted was so small that it was thought he might have a renal diabetes, the subsequent course, however, showed that there was a true diabetes, though of a very mild type

Pronounced renal insufficiency may apparently alter the curve of glucose excretion Patient 10 had chronic glomerular nephritis, and died a few months after the test in uremia

When sugar is found in the urine only after 100 gm of glucose, a further dose of 150 gm may be given We found that none of these cases showed a significant increase in glycosuria after 150 gm, but no doubt there is a stage in the development of true diabetes at which there will be no sugar after 50 gm, a little after 100, and a considerably larger amount after 150 gm At that time, however, there is not likely to be the occasional trace of sugar in the urine after carbohydrate food which attracts attention to the need for testing the capacity of the tissues to assimilate glucose

TABLE 2—EXAMPLES OF CASES DIAGNOSED AS NON DIABETIC GLYCOSURIA

Patient	Amount of Glucose in Urine			
	First Day	Second Day	Third Day	Fourth Day
	Intake=0 Gm Glucose Gm	Intake=25 Gm Glucose Gm	Intake=50 Gm Glucose Gm	Intake=100 Gm. Glucose Gm
1	0 0	0 0	0 0	0 0
2	0 0	0 0	0 3	0 0
3	0 0	0 9	1 0	0 1
4	0 0	0 6	2 9	2 5
5	0 0	0 0	2 9	2 0
6	0 0	0 7	0 8	2 2
7	0 0	0 3	0 6	1 1
8	0 0	0 5	0 8	0 6
9	0 3	0 3	0 3	0 3
10	0 0	0 0	0 0	0 0

In Table 2, examples of nondiabetic glycosuria are given The characteristic common to all is the want of a relationship between the amount of sugar ingested and the amount excreted With increase in the quantity of glucose taken, there is no increase or only a trivial increase in the quantity of sugar found in the urine

The first four cases are instances of the type of glycosuria which is most frequently encountered A patient comes to the clinic in a state of nervous tension A little sugar is found in the urine But when he goes through the test there is usually, as in Case 1, no sugar found in any of the specimens, though sometimes small amounts are found not steadily augmenting on the successive days, as in Cases 2, 3 and 4 Such glycosurias are probably analogous to the experimental glycosuria which may be induced by epinephrin There is a sudden conversion of glycogen in the liver into glucose with a consequent temporary hyperglycemia and the loss of a little sugar in the urine We have seen several instances of first class risks having been rejected by insurance companies on account of this evanescent and harmless glycosuria The same error is doubtless now being made in the medical examination of recruits

In Cases 5 and 6 there were symptoms of hyperthyroidism There is a good deal of evidence which goes to show that this also is an epinephrin glycosuria But here the state of excitation is more continuous than that which is seen in neurotic persons under strain, or in almost any one in the excitement produced by some physical accident As a consequence, the glycosuria is more constant Yet since it is not dependent on any loss of capacity to assimilate glucose, it can be distinguished from the diabetic type Both, it is true are due to an excess of sugar in the blood, in the one case to an overproduction of sugar from glycogen, and in the other to a failure of the tissues to use the sugar brought to them In the patient with hyperthyroidism, the ingestion of sugar tends as in the normal person to produce for a short time a slight increase in the sugar content of the blood, but it is very temporary, and with every round of the circulation more and more of the excess is removed by the tissues There is a limit to the rate of absorption of sugar from the intestine, and the greatest rate of absorption is less than the capacity of the tissues to take up the absorbed sugar, so that it comes about that the ingestion of increasing quantities of sugar leads to little or no increase in the sugar excreted in the urine In the diabetic, on the other hand, when sugar is taken there is hyperglycemia which lasts longer and rises higher, the greater the quantity consumed

Patients 7, 8, 9 and 10 probably had renal diabetes Most of the examples of this condition which we have seen have been in pregnant women Here there is no hyperglycemia but the kidney threshold for sugar is lowered The increase in the blood sugar content following sugar ingestion may lead to a slight increase in the glycosuria, but there is not the marked increase seen in diabetes, and, as it happens, our results in these cases have not been hard to interpret If there should be doubt, an estimation of the blood sugar during a period when sugar is present in the urine will decide the question

It is, of course, obvious that this method has not the accuracy or conclusiveness of a determination of the capacity of sugar utilization by the intravenous injection of sugar with the Woodyatt pump, for there are doubtless considerable variations in the rate of absorption of sugar from the intestine But what it lacks in accuracy is more than counterbalanced by its applicability and simplicity This test is better than the common practice of giving 100 gm of glucose If sugar is found in the urine after such a single dose, it may be an epinephrin or a renal as well as a diabetic glycosuria It is the steeply rising curve of sugar excretion, not the mere presence or amount of sugar in any one collection of urine, which is of diagnostic value

Finally, it should be noted that the usefulness of the method is not confined to the early diagnosis of diabetes It is important that a carbohydrate-free diet should not be given to a woman with a lowered kidney threshold for sugar during pregnancy, and it is worth while to save patients with hyperthyroidism from a diet from which the sort of food best fitted for them is excluded

PRIMARY NONPIGMENTED SARCOMA OF THE SKIN *

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AND

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CHICAGO

Primary, nonpigmented, isolated sarcoma of the skin is of relatively infrequent occurrence The majority of dermatologists have seen but few cases, if one may judge from the scarcity of reports on the subject Advanced sarcomas of the skin and subcutaneous tissues are more frequently encountered by the surgeons because of the large size attained by these growths and the necessity of surgical removal Hartzell[1] has remarked that the sarcoma of the surgeon differs widely from that of the dermatologist

The classification of the cutaneous sarcomas is still a debated question In recent years the group of malignant pigmented tumors formerly regarded as melanosarcoma has been classed by most pathologists as nevocarcinoma or malignant melanoma The various sarcoid, lymphoid and myeloid tumors, as well as Kaposi's hemorrhagic sarcoma, have also been separated from the pure sarcomas of the skin The nonpigmented sarcomas are usually subdivided into localized or single and multiple or generalized forms Histologically they are further divided into spindle cell (fusocellular), round cell (globocellular), giant cell and mixed cell It is our purpose briefly to consider the clinical and histologic aspects of the primary, solitary nonpigmented variety and to report two cases which we have had the opportunity to study in their early stages

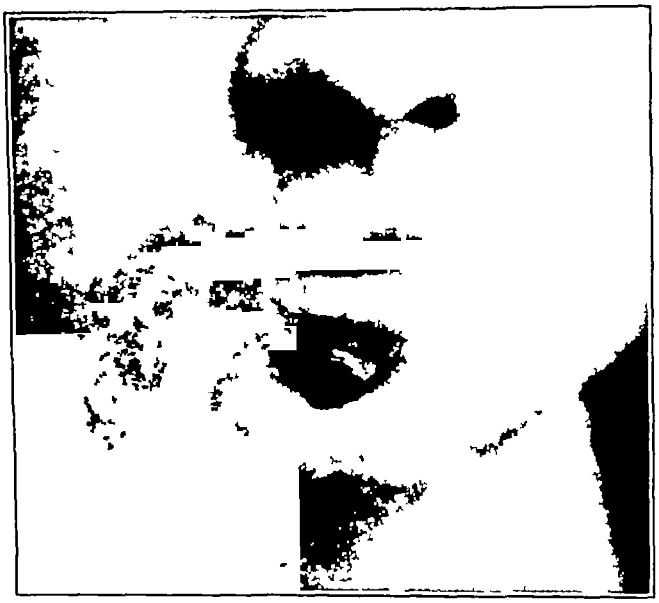

Fig 1 (Case 1) —Primary fibrospindle and giant cell sarcoma of the skin.

REPORT OF CASE

Case 1 —*History* —Miss G F , aged 21, came under observation in December, 1915, with a hard nodular tumor of the skin below the lower lip This was first noticed in February, 1915, as a small nodule which increased slowly but steadily in size. The patient denied that there had been any abnormality of the skin previous to the appearance of the tumor at that site In August, 1915, the growth was about the size of a pea and was excised by her physician Within a few weeks there was a recurrence, and it has rapidly grown to its present size There has been no pain, no bleeding, and no discomfort aside from the unsightly appearance of the growth

Present Condition —Midway between the lower lip and the chin was a yellow, xanthomatous-looking, platelike nodule situated deeply in the derma (Fig 1) The tumor was about

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* Read before the Section on Dermatology at the Sixty Eighth Annual Session of the American Medical Association New York June, 1917

[1] Hartzell Jour Cutan Dis, 1893, p 21

1 cm in diameter, round, circumscribed, and considerably elevated above the surrounding skin Minute blood vessels were seen over its surface Its consistency was hard, almost cartilaginous, and the tumor mass could be palpated for fully 0 5 cm in the depth of the subcutaneous tissue beyond its visible border Through the mucosa of the lip the tumor was readily felt as a platelike mass extending close to the mucous membrane. There was no enlargement of the submental or other cervical glands No other cutaneous growths were present A careful physical examination revealed no evidence of visceral metastases Examination of the blood and urine was negative

It was at once apparent that we were dealing with an unusual tumor of the skin, and the possibility of an isolated xanthoma or an osteoma was thought of on account of the cartilaginous feel of the tumor Under local anesthesia the tumor was widely excised and the cavity cauterized with silver nitrate Subsequently flat radium applicators were employed both externally and through the mouth for 60 milligram-hours in broken doses until a distinct reaction was produced The wound healed perfectly in three weeks, leaving a smooth scar without infiltration There have been no recurrences up to the present time and no evidences of metastases

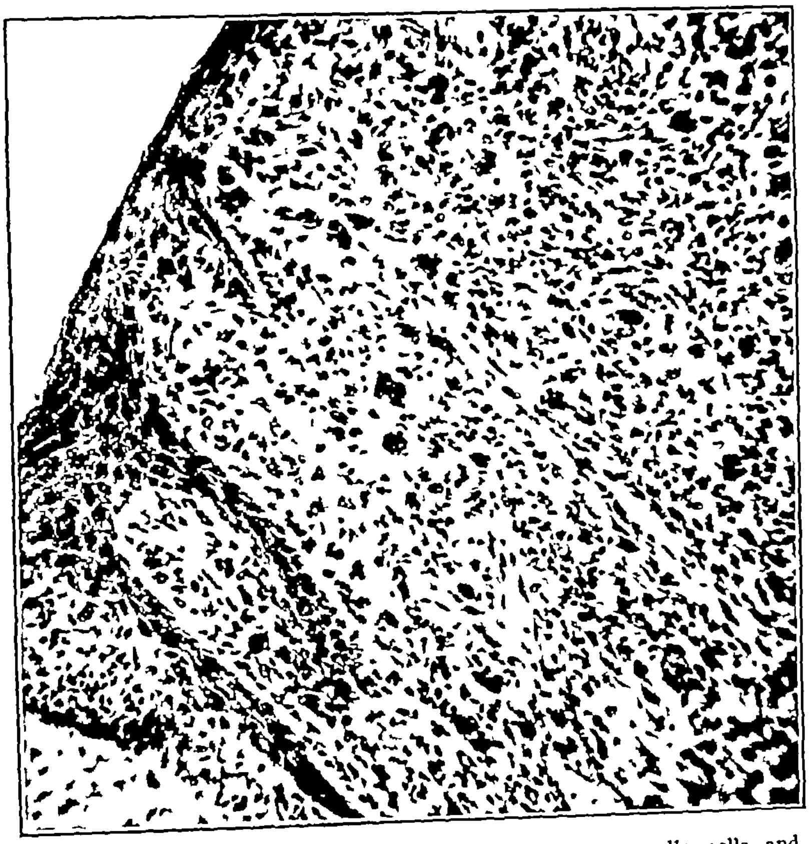

Fig 2 (Case 1)—Low power photomicrograph showing spindle cells and multinucleated cells (× 170)

Histologic Examination—Grossly the specimen on cross-section was found to be yellowish throughout and peculiarly hard Histologically the findings with ordinary stains were as follows The epidermis was thinned but otherwise normal The papillae were mostly obliterated The entire corium and subcutaneous tissues were replaced by a solid mass of cells of various kinds (Fig 2) In the subpapillary zone was a loose meshwork of spindle-shaped cells with a few plasma cells and small multinucleated cells In the deeper strata were found interlacing bundles of spindle cells running in various directions, surrounding small thin-walled blood vessels and mingled with numerous large giant cells There was considerable fibrillar intercellular substance The blood vessels were small, few in number and closely mantled with spindle cells Under higher magnification the predominating cells were seen to be typically spindle-shaped, with large vesicular nuclei, distinct nucleoli and tapering protoplasm Many small multinucleated giant cells were present containing from six to twelve deeply stained oval nuclei centrally situated and surrounded by a narrow rim of cytoplasm In the deeper layers of the tumor were found larger giant cells with from thirty to sixty ovoid nuclei peripherally arranged around a clear central zone (Fig 3) No mitotic figures were found Elastic tissue was absent All the normal glandular and collagenous structures of the corium had been destroyed and replaced by the tumor cells On account of the clinical resemblance of the tumor to xanthoma, sections were stained with sudan III and osmic acid None of the characteristic fat containing xanthoma cells were found The histologic diagnosis was a primary spindle cell and giant cell sarcoma of the skin This diagnosis was verified by Dr Robert Zeit, professor of pathology in Northwestern University

COMMENT

On account of the interesting and unusual features of this cutaneous neoplasm, particularly the finding of multinucleated cells, some of which resembled more the Langhans and foreign-body type of giant cell than the myeloplax type, a thorough search of the literature was made for similar cases Unna[2] was the first to describe a true giant cell sarcoma of the skin, a bluish-red tumor of the face composed of spindle cells with several nuclei, with a gradual transition to multinucleated giant cells which predominated in the deeper portions of the tumor Unna states that spindle cell sarcomas rarely show giant cells, while in the round cell forms, cell division is so rapid as to prevent the formation of giant cells Rahel-Zipkin[3] has reported a solitary cutaneous sarcoma of the groin with giant cells of the Langhans type Pasini,[4] at the International Congress at Rome in 1910, presented a case almost identical with ours under the title "sarcoma fusi-gigantocellulare della pelle" This was a small isolated tumor in a woman, aged 23, situated in the cutis and subcutis of the thigh, which had recurred twice after excision Careful histologic study showed this tumor to be composed of large and small fusiform cells and large giant cells of variable form, with voluminous nuclei differing from the ordinary giant cell and Robin's myeloplaxes and resembling more those of bone marrow A number of instances of multiple giant cell sarcomas of the skin were collected by Crocker[5] in 1903, and a few additional cases have been reported since then Odstrcil[6] reported a rare case of primary multiple giant cell sarcoma of the skin with metastases in the inner organs in a 6 months old boy Brotman[7] has described a case under the title "sarcoma cutis gigantocellulare" occurring in a child of 11 with yellowish-brown tumors resembling juvenile xanthoma situated on the eyelids, neck, elbows and groins Microscopically, those showed large numbers of multinucleated giant cells among the spindle cells

It is evident, therefore, that a true giant cell sarcoma of the skin, that is, one in which giant cells are present in large numbers and are an essential element in the development of the tumorlike spindle or round cells, must be very rare Pathologists have not definitely determined the origin of the giant cells in sar-

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2 Unna Histopathologie der Hautkrankheiten, 1894, p 754
3 Rahel Zipkin Virchows Arch f path Anat, 1906, **186,** 240
4 Pasini Gior ital d mal ven, 1912 **46,** 353
5 Crocker Diseases of the Skin, Ed 3, 1903, p 1019
6 Odstrcil Arch f Dermat u Syph, 1912 **111,** 869
7 Brotman Rusk Jur Kozhn, 1, ven polienz., 1912, **33,** 137
abtsr, Jour Cutan Dis., 1913

coma Mallory[8] suggests that there are two types of giant cells (1) the giant cell due to multiple mitoses signifying rapid proliferation under favorable nutritive conditions and representing a true tumor cell occurring in some forms of fibrosarcoma and (2) the giant cell due to fusion of endothelial leukocytes attracted to the tumor by foreign bodies like fat crystals or lime salts around which they have fused This type is found in the so-called giant cell sarcoma of bone and in the 'epulis tumor of the lower jaw which is thought by some pathologists to be inflammatory tissue full of giant cells A few instances of giant cell sarcomas outside of the skeletal system have been recorded in the tendon sheaths of the hands the uterus mammary gland and the subcutaneous tissues Some of these cases described as myelomas of the tendon sheaths have been found to contain cholesterin and therefore belong to the xanthomas In every case of sarcoma of the derma or subdermal tissues containing large numbers of giant cells some possible connection with the underlying bone substance should be sought for in accordance with the theory of embryonal rests or embryonic defects

REPORT OF CASE

Case 2 —*History* —F W man aged 22 was first seen in October 1915, in consultation with Dr Irving I Stein The patient presented a bean-sized nodule in the skin above the left elbow Two months previously the arm had been burned by a belt causing a wound which closed and opened alternately discharging a dark bloody fluid Four weeks later he first noticed the cutaneous nodule at the site of the injury The nodule was bluish-red, and had a hard pearly border, and a crater in the center admitting a probe. There was a slight bloody discharge, but no pain or tenderness The nodule was rather deeply situated in the cutis The regional glands were not enlarged Examination of the rest of the body was negative. The blood and urine findings were normal The nodule was widely excised under cocain and epinephrin and serial sections in paraffin were made The wound healed within ten days, and there has been no recurrence.

Histologic Examination —A solid mass of tumor cells occupied the entire corium and extended into the subcutaneous tissue. The epidermis overlying the tumor was thinned and ulcerated at the center of the growth. At the periphery the infiltrating character of the growth was clearly seen (Fig 4), small bundles of tumor cells growing between and destroying the collagenous bundles and lymphatic spaces Under the high power, typical oat-shaped cells were seen, closely massed together in interweaving bundles with little intercellular fibrous tissue No mitoses were found. All the normal cutaneous appendages as well as the elastic tissue were destroyed in the zone of growth of the tumor cells Beyond the periphery of the tumor, both elastic fibers and glands were preserved. There was considerable hemorrhagic extravasation at the zone of ulceration, and there were numerous dilated thin-walled blood vessels around which the spindle cells were closely approximated A small amount of golden-yellow blood pigment was deposited in the tumor cells occupying the subpapillary space No giant cells were present The histologic diagnosis was a pure spindle cell sarcoma of the cutis undergoing ulceration in its early stages The interesting feature of this case was that it represented a primary spindle cell sarcoma, developing apparently in normal skin after an injury

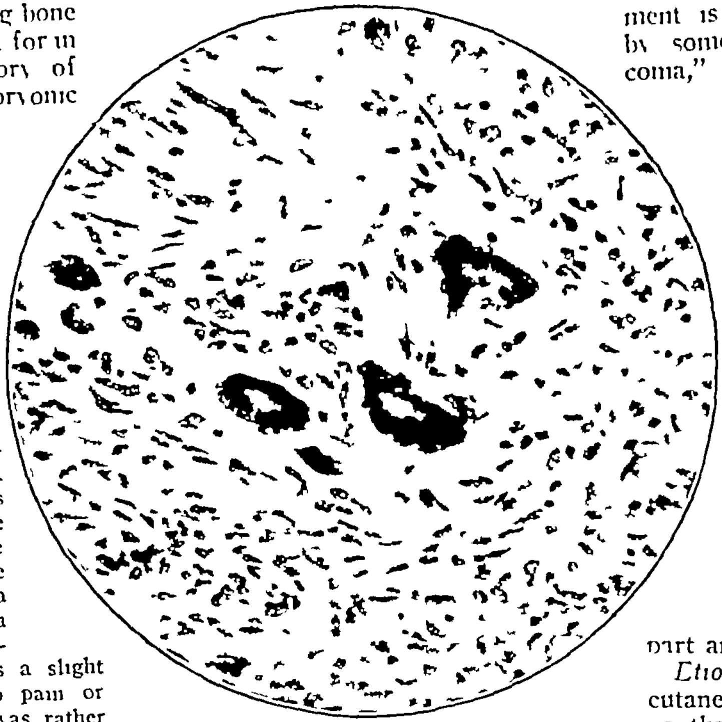
Fig 3 (Case 1) —High power photomicrograph showing giant cells and spindle cells (× 325)

COMMENT

The literature contains scattered references to the localized types of cutaneous sarcoma the spindle cell forms being more frequently observed than the round cell forms Unna has described the pathologic features of these growths in great detail, and regards the fusocellular form as the main type of sarcoma involving the cutis proper When the fibrous element is pronounced the term "fibrosarcoma" is employed and this represents the most benign type of sarcoma, which frequently originates in a scar or fibroma, grows slowly, and seldom metastasizes The tumors which arise apparently from the adventitia of the blood vessels, in which the vascular element is pronounced, are called by some authorities "angiosarcoma," although Mallory and other recent writers object to this term According to Johnson,[9] the true fibroblastic sarcomas arise in the connective tissue of the corium or subcutaneous tissues and are composed of small or large spindle cells The small round cell sarcomas he regards as lymphoid in character and the large round cell forms as endotheliomatous In general the cells of the sarcomas are subject to great morphologic variation, and may appear spindle shaped in one part and round in another

Etiology —The origin of the cutaneous sarcomas is as obscure as that of other tumors The recent experimental studies on the cultivation of sarcoma cells in vitro and on the growth of fowl sarcoma have supplied many interesting data but have not cleared up the etiology The chicken sarcoma of Rous is considered by some pathologists as an infective granuloma The most recent observations which may throw some light on the etiology of sarcoma are those of Leyton[10] He inoculated rats with an emulsion of rat sarcoma passed through a Berkefeld filter, and in four out of eighteen rats a tumor developed exactly like the spindle cell sarcoma He considers the active cause of sarcoma a streptothrix, the spores of which pass through a Chamberland filter

The chief fact to be emphasized in the etiology of the solitary cutaneous sarcomas, judging at least from the literature, is that they rarely originate in the normal cutis but usually begin in some preexisting lesion, such as a congenital nevus, scar, fibroma, lymphangioma, sebaceous cyst, dermoid cyst, "wart" or other benign growth The malignant transformation is probably in many instances due to irritation or trauma In neither of our cases was a history of a preexisting abnormality obtainable, and an injury was definitely related to the malignant change in the one case It has been argued that the experimental proof of the development of a malignant tumor as a result of injury is lacking, but clinical evidence, particularly in the case of the sarcomas, shows that a single trauma is of great etiologic importance Seckel[11] has reported the sarcomatous degeneration of a benign "wart" in the arm of a girl aged 20, as a result of irritation Heredity may play a possible rôle, and a number of cases of congenital sarcoma of the skin are recorded The development of a cutaneous sarcoma early in life is also a not infrequent occurrence Dubreuilh[12] has personally observed five cases of round cell sarcoma of the skin in young children from 1 to 7 years of age, three of which began as isolated tumors He has collected numerous reports of other cases of congenital nonpigmented sarcoma from the literature, most of which were, however, disseminated tumors These cases show that the theory of embryonic defects must be considered in the etiology

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[8] Mallory Pathologic Histology

[9] Johnson Jour Cutan. Dis 1901 **19** 305 1903, **21**, 23

[10] Leyton Lancet London March 4 1916

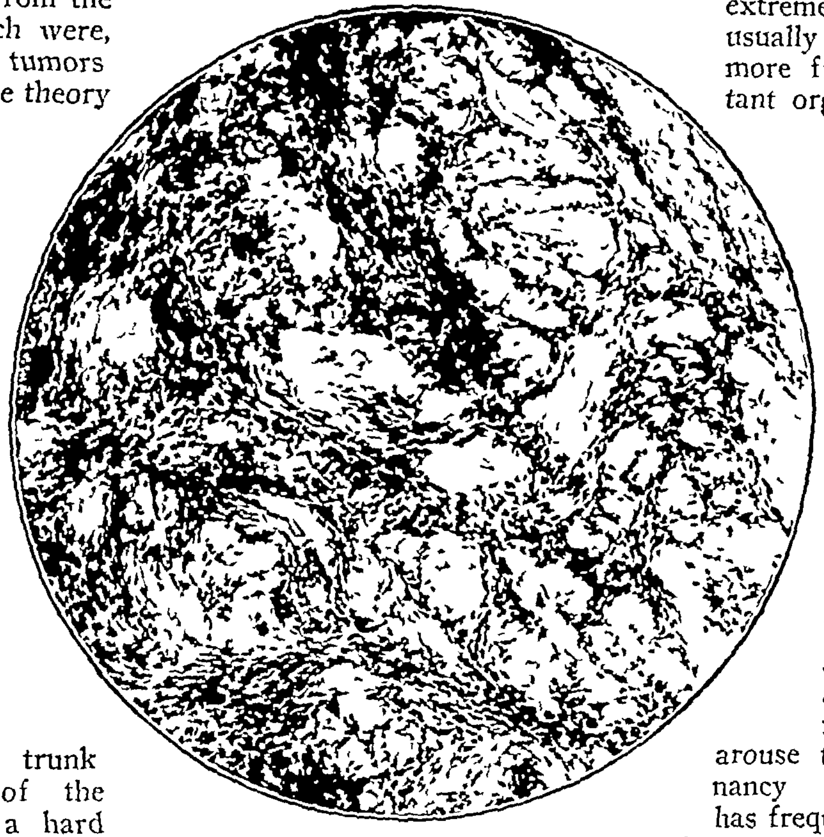

Fig 4 (Case 2) —Low power photomicrograph of early spindle cell sarcoma of the skin showing infiltrative type of growth at border of lesion (× 110)

Clinical and Pathologic Characteristics—According to the observations of Funk,[13] Perrin,[14] Unna,[2] Johnson[9] and others, the primary spindle cell sarcoma begins as a reddish-brown or blue-brown, pea-sized macule or as a flat nodule situated in the corium The fibrosarcoma begins frequently as a white or yellow platelike nodule The regions of predilection are the head, neck and extremities, rarely the trunk Further development of the tumor produces either a hard smooth node, or a soft, fungating or even pulsating tumor Occasionally a diffuse infiltration of the skin results by involvement of the subcutis The tumor is usually pea to cherry sized, but may even grow to the size of an orange When the tumor begins in the subcutis it may at first be a mobile nodule with a fibrous capsule, and is easily shelled out The overlying skin may be unchanged, but later becomes red from pressure Ulceration is quite frequent, and may take place early The cutaneous sarcoma enlarges both by proliferation of its own elements and by invasion of the surrounding tissues It may exist as a localized lesion for months, and dissemination takes place by the formation of secondary nodules in the neighboring or distant skin, subcutis and rarely skin nodes and internal organs Vascular metastases are more common than are lymphatic Johnson[9] gives as the six clinical features of the spindle cell fibrosarcomas (1) slight malignancy, (2) absence of metastases in skin nodes and viscera, (3) extremely slow spread, (4) tendency to progression in one spot with spontaneous involution in others, (5) absence of pigment, and (6) superficial character of ulceration if any is present

The clinical features of the primary round cell sarcomas of the skin belong to two types, according to Hazen[15] 1 A pale red vascular nodule begins in the apparently normal skin, which bleeds easily and tends to ulcerate 2 A nevus breaks down and undergoes malignant change Perrin describes a type of round cell sarcoma which begins in the hypoderm as an isolated tumor, and is fatal within two years Pusey[16] has observed two instances of solitary round cell sarcomas, both occurring on the finger In one of these cases death occurred within twelve months after excision Darier[17] has recorded a small round cell sarcoma involving the nose which clinically resembled a rhinoscleroma In general these tumors are extremely malignant, growth is usually rapid, and metastases are more frequent both in the distant organs and in the regional glands The small round cell forms are especially malignant

Diagnosis—The nonpigmented solitary sarcomas have such variable clinical characteristics that the diagnosis can usually not be made definitely without microscopic confirmation It is particularly important to differentiate localized granulomas, gumma, epithelioma, fibroma, hemangioma and other benign growths of the skin The rapid growth and breaking down of a fibroma should at once arouse the suspicion of malignancy Granuloma pyogenicum has frequently been mistaken for sarcoma In a case occurring in the practice of Dr Joseph Zeisler, a young girl presented a curious, pedunculated dark red, friable tumor of the eyelid, which bled easily and might readily have been mistaken for sarcoma The microscope showed the typical granulation tissue characteristic of granuloma pyogenicum Wherever there is any doubt about the diagnosis of a solitary cutaneous neoplasm, the tumor should be excised as a whole and examined microscopically

Prognosis—The spindle cell tumors appear to be less malignant than the round cell forms The excellent results obtained in our two cases show that early surgical removal is frequently followed by cure The statistics of Bloodgood[18] are interesting in this connection In a series of six sarcomas arising from congenital nevi there was only one cure In eight sarcomas designated as hemangiosarcomas, there were no cures. Of nineteen skin sarcomas originating in scars, six of the spindle cell variety were cured by operation. The cases not cured were of the round or pure spindle cell type. Bloodgood states that the first appearance of a growth in scar tissue differing from a keloid is an indication for radical removal of all scar tissue. Seven cases of sarcoma originating in fibroma were treated, with four permanent cures, all of the fibrospindle cell variety.

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[11] Seckel Centralbl f allg Path u path Anat, 1906, p 515
[12] Dubreuilh Ann de dermat et de syph, May 1911
[13] Funk Monatschr f prakt Dermat, 1889, pp 18 and 60
[14] Perrin La pratique dermatologie, 1904 4 20
[15] Hazen Skin Cancer, St Louis, 1916, p 138
[16] Pusey Principles and Practice of Dermatology, 1907, p 896
[17] Darier Ann de dermat et de syph May 1911
[18] Bloodgood Progr Med, December, 1912

Treatment.—Prevention is of great importance and early surgical removal of all benign growths of the skin exposed to irritation or trauma is indicated. After a sarcoma has developed immediate surgical removal is preferable, and the excision should be made as wide as possible. This should be followed by treatment with radium or the Roentgen ray to prevent recurrences. In the treatment of inoperable sarcoma, the results of Wickham and Degrais with radium have been sufficiently encouraging to justify the use of this agent.

CONCLUSIONS

1. Primary spindle cell sarcoma of the skin may exist for a considerable time as a localized lesion.
2. Early excision will prevent the dissemination of a localized cutaneous spindle cell sarcoma.
3. A primary nonpigmented sarcoma of the skin composed of spindle and giant cells is a rare type of cutaneous sarcoma.
4. The diagnosis of nonpigmented sarcoma cannot be made with certainty without microscopic confirmation.

30 North Michigan Avenue.

ABSTRACT OF DISCUSSION

Dr. J. M. King, Nashville, Tenn.: Three years ago a man came to me with a nonpigmented nodule on the left forearm, midway between the elbow and wrist, located in the skin. He habitually picked up the nodule and rolled it between thumb and finger. He observed that the tumor slowly enlarged. I could not make a clinical diagnosis nor could a surgeon whom we had in consultation, but for fear of sarcoma, we advised excision, microscopic examination, and, if needed, treatment with Roentgen ray. The pathologist reported a "small spindle-cell sarcoma." The patient received Roentgen-ray exposure. Dr. Bainbridge of New York saw this man last summer and afterward wrote me that there was no recurrence but considerable atrophy about the site of the lesion, and advised excision of the scar.

May I be permitted to report an unusual case probably of sarcoma? The patient, a man aged 55, had a lesion which started on the left hip just below the crest of the ilium. After two or three years a superficial ulceration set up, spreading to the size of the palm. The border was very irregular and the ulcerated part extremely painful and tender. He was seen in New York by Dr. A. R. Robinson and Dr. Prince Morrow. Syphilis was their diagnosis. I made a biopsy, but the pathologist could not make a diagnosis. The patient could not take the iodid prescribed by Dr. Robinson. Without the administration of any medicine, I applied the Roentgen ray, with a perfect result as far as curing the lesion was concerned. But two years ago, ten years after he was well, an inguinal gland enlarged, was removed and examined, with the report of sarcoma. Later another sarcomatous gland was removed. Now there are two enlarged glands lying just inside the pelvis. The old scar is smooth and well and there are no other signs of primary sarcoma.

STILL'S DISEASE

WITH REPORT OF A CASE *

ARTHUR S. ROSENFELD, A.B., M.D.
PORTLAND, ORE.

The first recorded cases of chronic arthritis in children were the fifty reported by Moncorvo in 1878. Then Still[1] of London, in 1897, reported twenty-two cases, in twelve of which there was a special clinical picture different from the ordinary forms of so-called "chronic rheumatism." To these his name was given. Following Still's description, further cases were described by Weber, Whole, Paynton, Hingston and Newlin. By 1904, twenty cases had been described in England and only one in Germany. Piske[2] reported two cases in 1913 from the Kinderklinik at Kiel. He ascribed the scarcity of the German cases to the fact that the clinical picture had been relatively unknown, and in most textbooks was not mentioned, or if so, briefly.

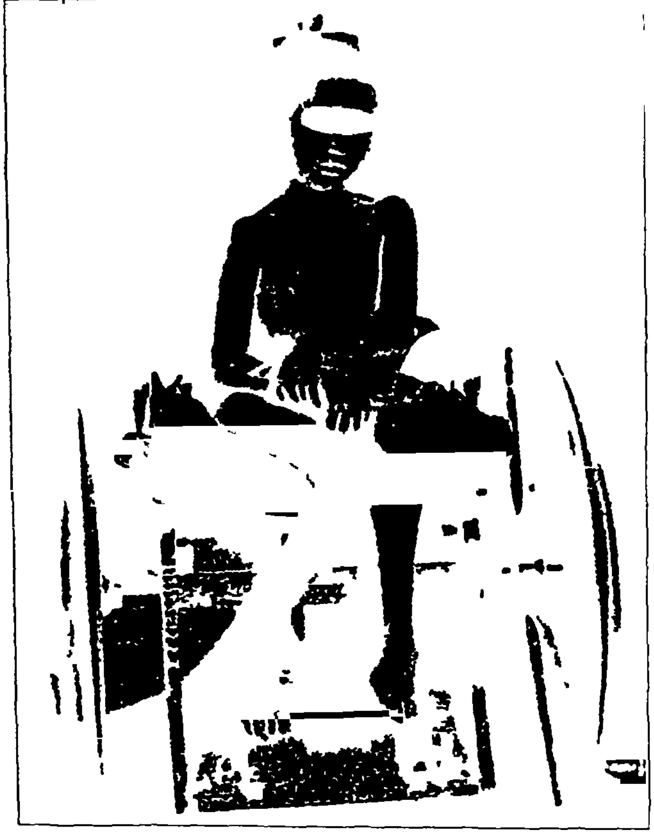

Fig. 1.—The patient: note flexion and rigid adduction of thighs.

This chronic deforming disease of the joints in children bears a great many points in common with the arthritis deformans of adults. It becomes a matter of some difficulty to place it properly in our present unsatisfactory classification of chronic arthritis, as we are beginning to realize that arthritis is generally if not always secondary to a process elsewhere in the body, and so far no definite etiology has been proved for Still's disease. It was originally described by Still as a clinical entity and by some is still held to be such. Garrod[3] is inclined to place these cases in the group of rheumatoid arthritis occurring at an early age, but makes the reservation that there are some arguments to support the view that they are a distinct malady McCrae[4] regards it as arthritis deformans occurring in childhood, the only question being at what age to draw the line between the two Elsner[5] and Osler concur in this opinion, stating that the trend of modern opinion is that these arthritic conditions are dependent on an infectious process Still thought it probably was a form of infectious arthritis due to the invasion of some micro-organism The presence of pleural and pericardial adhesions, the enlargement of the spleen and glands, fever and acute symptoms are in favor of this view Ibrahim[6] regards it as of tuberculous origin related to the cases which Poncet[7] has described Levi and Rothschild attribute the condition to a functional disturbance of the thyroid gland, but the therapeutic test of gland feeding has given no results With regard to the theory of sepsis, blood cultures taken during the acute febrile stages of the disease have proved negative Heredity, bad feeding, privations and faults of hygiene are not prominent in cases reported Pathologically there is nothing distinctive about the disease The picture is one of periarticular enlargement with little bony change other than some rarefaction There is no osteophyte formation nor erosion of cartilage The glands and spleen show enlargement, but on gross section appear normal A lymph gland removed during life showed microscopically merely a hyperplasia of the lymphoid cells with increase also in the plasma cells such as we are accustomed to see in the beginning of Hodgkin's disease[8]

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* Read in part and patient demonstrated before the City and County Medical Society, Portland, Ore., Jan. 17, 1917.

[1] Still, G. F.: in Albutt and Rolleston: System of Medicine, Ed. 1, 1897, **3**, 17; Med.-Chir. Tr., London, 1897, **80**, 47.

[2] Piske, J.: Med. Klin., 1913, **9**, 2.

[3] Garrod, A. E.: in Albutt and Rolleston: System of Medicine, 1910, **3**, 17; Proc. Roy. Med. and Chir. Soc., London, 1896-1897, N. S. **9**.

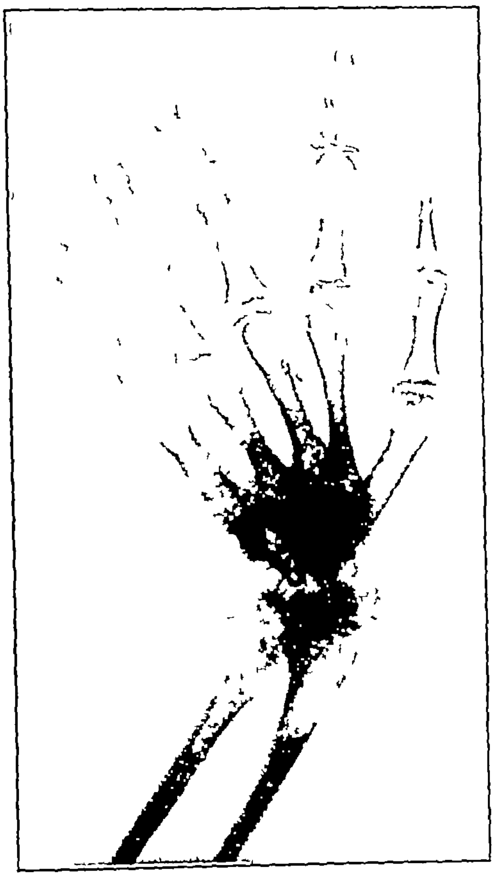

Fig 2—Deformity of fingers and wrist joint note rarefaction of ends of long bones and underdevelopment of diaphyses of radius and ulna

REPORT OF CASE

History—A girl, aged 16 years, born in Portland, Ore, with unimportant family history, had been born normally and had developed normally up to the fifth year Measles had been her only illness There was no history of tonsillitis, chorea, endocarditis, or other acute infection At the age of 5, she had an attack of what was called "rheumatism" She seemed to recover completely from this, and remained well for the following year At the age of 6, her present symptoms began The disease began with fever, sweats and rheumatic pains There were swelling, tenderness, and limitation of motion of the small joints of the fingers The process slowly spread until it involved in order the knee joints, elbow, neck, feet, and lumbar spine It finally involved the temporomaxillary and hip joints For the past year and a half she had been unable to open the jaw widely During these years there had been spells of fever when all her symptoms became worse, and remissions when she was fairly comfortable The deformity came gradually with the progress of the disease She had not walked in nine years The patient's mother herself noticed the swelling of the glands in the region of the joints affected, she said that at times they reached the size of a small walnut and were plainly visible Aside from the joint symptoms, the child had always been weak and pale She had not developed according to her years, and appeared as a child of 8 or 9 years of age The secondary sex characteristics were absent The mentality had always been clear She had been troubled with headaches and toothaches

Physical Examination—In the midst of an exacerbation, the patient appeared weak, pale, acutely ill and in pain There was hyperhidrosis She was fairly well nourished The head was large and held rigid on the neck The temporal and parietal bosses were prominent There was moderate exophthalmos The mouth could be opened only about one third The tongue was coated The breath was offensive Inspection of the pharynx and tonsils was impossible on account of limitation of motion of the jaw The teeth and gums were in miserable condition There was intense pyorrhea alveolaris The upper incisors were carious and worn down to short stumps There was evidence of decay in the other teeth There was general glandular enlargement involving the cervical, maxillary, epitrochlear, axillary, and inguinal lymph nodes The glands in the neighborhood of the affected joints especially were enlarged, some to the size of a hazelnut They were firm, discrete, and not tender There was symmetrical enlargement of both lobes and isthmus of the thyroid, there was no bruit or thrill Examination of the heart revealed precordial heaving, with exaggeration of the apex impulse There was a presystolic thrill at the apex The heart was enlarged to the right and left There was a presystolic murmur ending in sharp shock of the first sound, which was then followed by a soft blowing systolic murmur transmitted to the axilla The action was regular The aortic and pulmonic second sounds were exaggerated The abdomen was full and distended, with no masses or tenderness The liver was felt one finger's breadth below the free border of the ribs, and was firm, smooth, and not tender

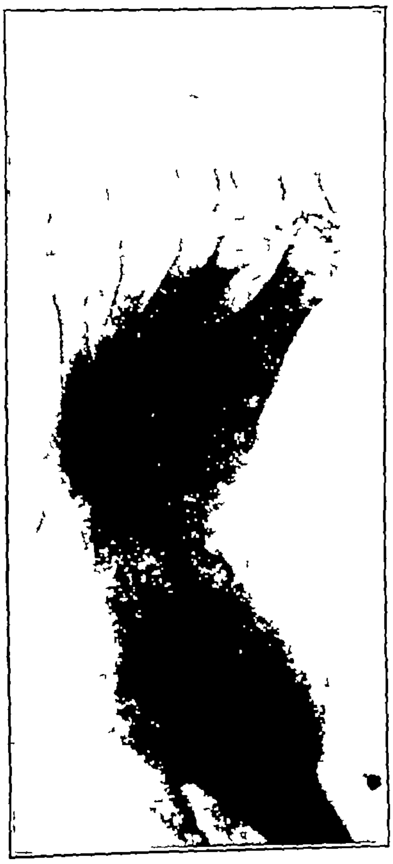

Fig 3—Clubfoot deformity

There was stiffness of the cervical spine The head was held erect Motion of the jaw was limited There was fusiform swelling and tenderness of the shoulder joints with pain on motion The swelling appeared to be periarticular The condition of the elbows, wrist joints, and interphalangeal joints was similar The elbows were flexed at 90 degrees and almost immobile The wrists also were flexed The fingers were deformed There was scoliosis of the lower dorsal and lumbar spine with rigidity simulating poker spine The thighs were flexed on the abdomen and held in rigid adduction The legs were flexed on the thighs with almost complete immobility In the knee joints there was the same deformity as described in the other joints There was double rigid flat foot with deformity of the toes In no joint could crepitus be elicited There was extreme muscular atrophy of the arms thighs, and legs

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[4] McCrae, Thomas, in Osler and McCrae Modern Medicine, Arthritis Deformans, THE JOURNAL A M A, Jan 9, 1904, p 94, Jan 16, 1904, p 161

[5] Elsner, H L Monographic Medicine, 4 110, 6, 1088-1092

[6] Ibrahim Handbuch der Kinderheilkunde

[7] Poncet, A, and Leriche, R Gaz d hop, 1912, pp 85, 485

[8] In addition to the references already given, the following will be found of interest

Bulletins of the Committee for the Study of Special Diseases, Cambridge

Nathan Am Jour Med Sc, 1906, 131 55 ibid, 1906 132, 857

Pribram, A, in Nothnagel Specielle Pathologie und Therapie, 1902, 7, Part 5

Willner, O Centralbl f d Grenzgeb d Med u Chir, 1911 14, 241 249, 289 293, 321 325

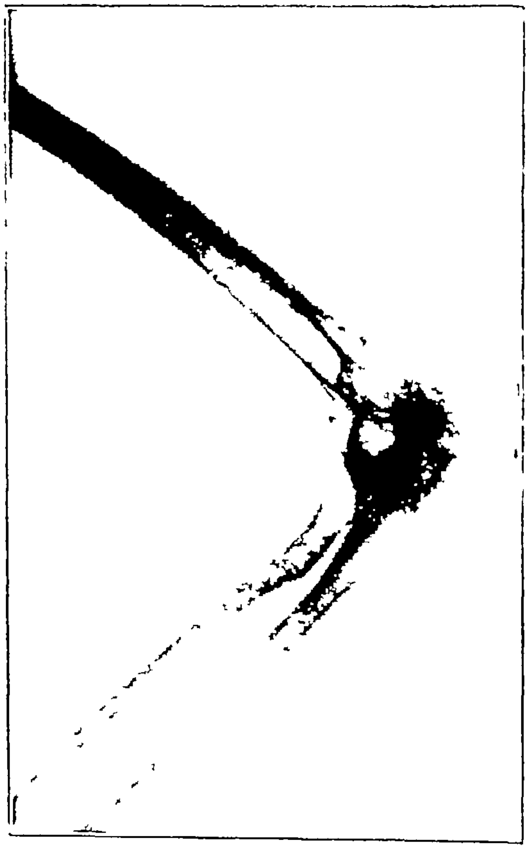

Fig 4—Elbow joint in full extension

Blood examination revealed hemoglobin, 55 per cent, red blood cells, 4 500 000, white blood cells 13,800 polymorphonuclear neutrophils, 61 5 per cent, polymorphonuclear eosinophils 2 per cent large and small lymphocytes 29 per cent large mononuclears and transitionals, 7 5 per cent The urine was clear amber acid with specific gravity of 1 015 and a very faint trace of albumin, sugar was absent, there was a very faint trace of indican There were microscopically a few white and red blood cells The Wassermann test was negative The von Pirquet tuberculin test was negative

Roentgenoscopy revealed no new bone formation or ankylosis in any of the articulations The joint surfaces appeared intact The swelling in each case was periarticular The epiphyseal ends of the bones seemed unduly large in comparison with the narrow undeveloped shafts The epiphyses also showed a marked rarefaction of the bony substance such as has been described in the cases of so-called rheumatoid arthritis Roentgenograms of the teeth revealed abscesses at the roots of each of the incisor teeth It was impossible to obtain satisfactory plates of the other teeth

Further Course of the Disease—The patient came under my direct care Oct 31 1916 She was at that time in one of her periods of pyrexia Her daily temperature ranged from 101 to 102 F The joints were tender and swollen and she seemed to be in great pain especially in the hip joint and the lumbar spine. Sweating was profuse The lymph glands in the neighborhood of the joints were all greatly enlarged, and the spleen likewise This condition lasted for several weeks, when there was slight spontaneous abatement of the symptoms The child had never been entirely free from pain in all the years of her illness

In the search for a definite focus of infection which might have been responsible for the joint changes and other disease symptoms with which the patient had been afflicted, attention became focused on the possibility of a long standing oral sepsis On account of the extreme pyorrhea alveolaris, the visible decay of the teeth and the Roentgen findings, it was decided to remove this source of infection The patient was accordingly put under ether anesthesia and all the teeth showing any signs of decay—about eighteen in number—were extracted, Jan 25, 1917 In each case there were found either carious roots or small abscesses about the roots Cultures were taken from several of these abscesses and put on glucose serum agar slants

They each showed a staphylococcus and a streptococcus in chains and pairs The 2 days old mixed cultures were washed and inoculated intravenously into three rabbits On the fifth day two of the rabbits were slightly lame Rabbit 1 which received the larger injection was lame in the front legs and was killed Necropsy revealed negative urine, increased serous fluids in the elbow joints, slight vegetations on the mitral valve, white annular plaques—about eight or ten—in the intima of the ascending aorta, the latter were the only lesions of this type ever encountered in a routine examination of several hundred rabbits inoculated with various cultures The lungs were slightly hyperemic Cultures from the elbow gave cocci in pairs Rabbit 2 which received a smaller dose, was slightly lame in the front legs It was killed Increased serous fluid in the wrist joints and shoulders were found, but no pus There were no other lesions Cultures from the shoulder were negative Cultures from the wrist revealed a growth which was extremely slow in broth, but which grew rapidly on enriched agar, and had the following characteristics

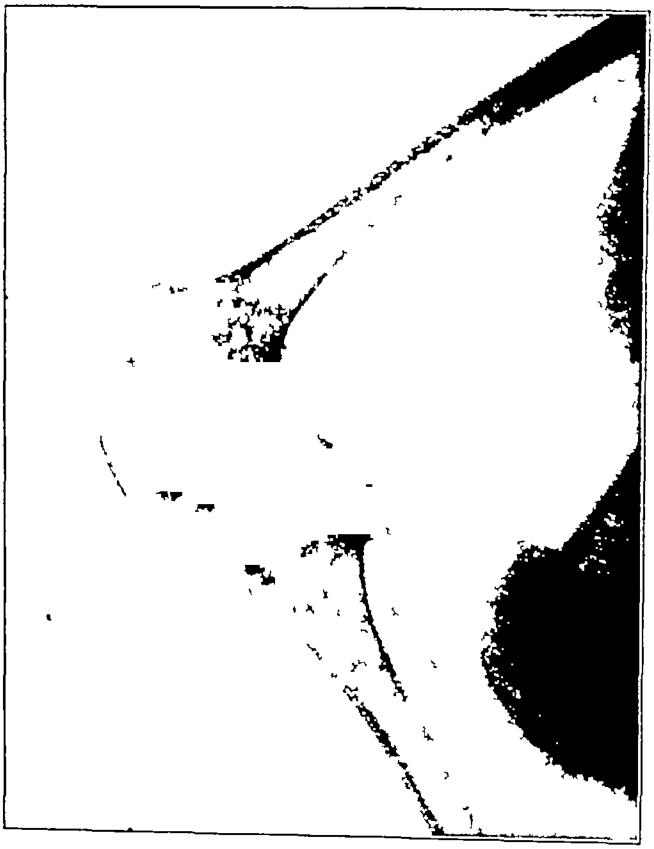

Fig 5—Lateral view of knee joint note rarefaction of epiphyses of bones and periarticular swelling

The stroke showed abundant white, smooth, waxy, raised, glistening growth, and after standing a few weeks, it turned to an orange yellow Microscopically it occurred in pairs and short chains, but also manifested a division in two planes Cultural characteristics were no gas in dextrose, levulose, mannite, maltose, inulin, lactose, or saccharose, but distinct acid reaction in dextrose and levulose and slight in maltose

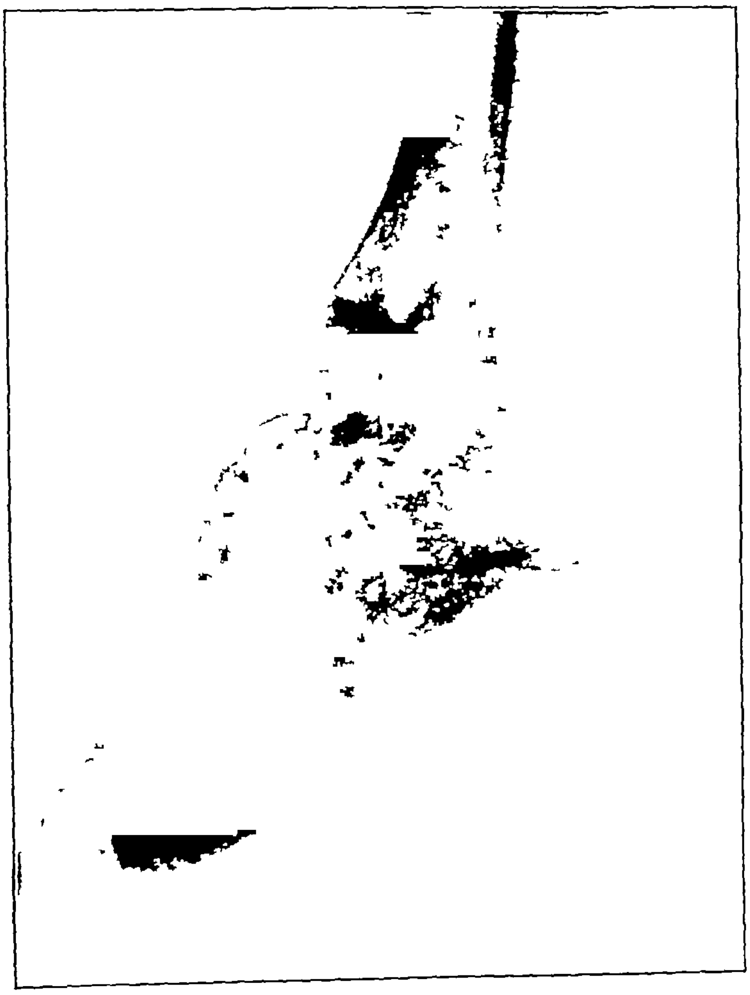

Fig 6—Lateral view of clubfoot deformity

The culture was kept for several weeks, after which a third rabbit was inoculated It promptly developed a purulent arthritis from which the original organism was recovered Further work will be done on the nature of this organism

Vaccine Treatment and Result—A vaccine was prepared from the cultures, and treatments were at once instituted, starting with a small dosage and gradually increasing until a dose of 600,000,000 was reached, as follows

March 3, 1917, 60,000,000, March 14, 120,000,000, March 24, 240,000,000, April 19, 360,000,000, April 25, 480,000,000, May 1, 600,000,000, May 7, 600,000,000 With the exception of the injection of April 19, when the patient suffered a local reaction, headache, malaise, pain in the right knee joint but no fever, the vaccine treatments have caused no focal or constitutional reaction The improvement in the patient's condition following the oral cleaning and the institution of the vaccine injections has been quite marked and most gratifying Since the end of January there has been a complete abatement of all the acute symptoms There have been no spells of fever or rheumatic pains The lymphadenitis has subsided, with the exception of a few axillary nodes which are still palpable The spleen also is still enlarged The child's general condition has become vastly improved, her weight has increased, and she has attained a state of vigor and well-being which would better allow operative interference for her deformities should such orthopedic measures be considered This period is the longest that she has ever remained without fever or rheumatic pains, and while it is rather premature to say what the end-result will be, still I deem it worth while to give this preliminary report in view of the striking improvement

COMMENT

Evidence and deductions made from one case are necessarily inconclusive I do not claim to have discovered a specific etiologic agent for this most unfortunate and rare affliction I should, however, like to add my voice to those who regard this disease as one of the many pathologic states resulting from focal infection The case corresponds in almost every detail to those of Still's classical description, and we are able to demonstrate in addition a potent source for toxemia Whether this oral sepsis was causative in the case or merely an incidental feature I am unable to state with any conviction Significant facts are the arthritic changes produced in rabbits when inoculated with cultures from the child's mouth, and the improvement in her condition which was demonstrated after removal of the septic focus It may be that some day Still's idea as to the specificity of this disease will be substantiated Until then, let us act on the assumption that focal infection can and does produce a similar syndrome

1117-1118 Selling Building

EXOSTOSES, OR GONORRHEAL SPURS OF THE OS CALCIS

E P MERRITT, MD

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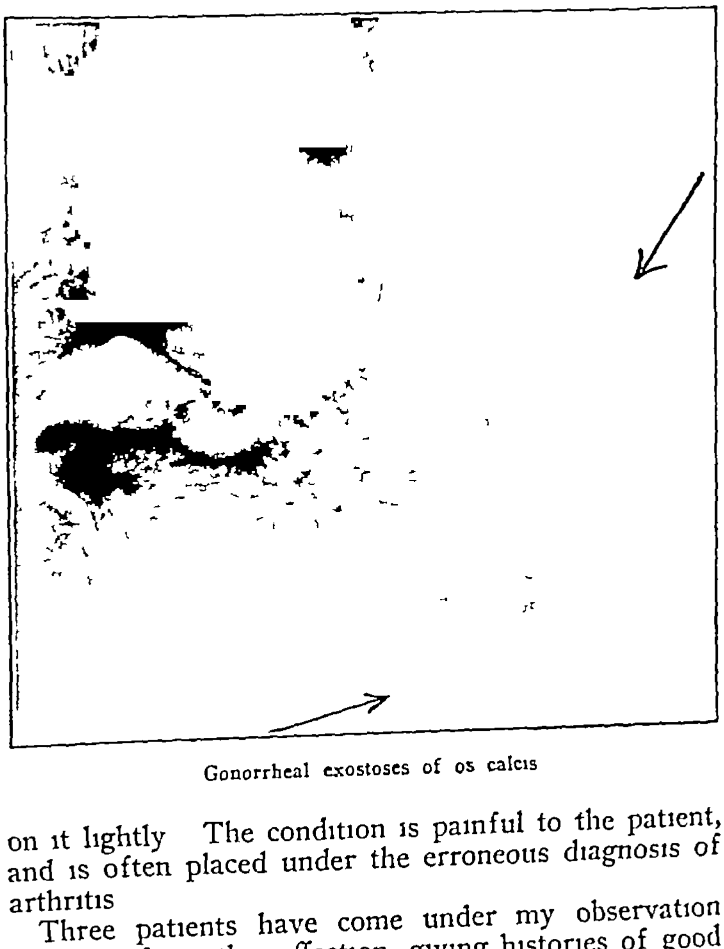
ATLANTA, GA

There is little to be found in the literature concerning spurs of the os calcis due directly to gonorrhea, though each textbook on orthopedic surgery touches on it lightly The condition is painful to the patient, and is often placed under the erroneous diagnosis of arthritis



Gonorrheal exostoses of os calcis

Three patients have come under my observation suffering from this affection, giving histories of good health and no discomfort previous to an attack of gonorrhea Other etiologic factors which must be thought of in connection with painful heels are flat foot, syphilis achillobursitis, etc

"Ossifying periostitis leads to the formation of bony excresences, exostoses or osteophytes First there is a proliferation of the osteogenic layer of the periosteum, then partial ossification, and finally complete bone formation with firm attachment to the underlying bony structure The osteogenesis is essentially the same but the periosteal bone depositing cells are working in a tissue the seat of productive fibrosis, so that the calcium salts are not laid down in an orderly manner along the surface of the bone These changes may be circumscribed or diffuse, and cause irregular elevations or general thickening of the bone The exudate may be merely fibrous tissue or a soft albuminoid material, usually leading to periosteal thickening but occasionally invading the bone or marrow"

The usual modes of invasion of the gonococcus to remote bony structures are either lymphogenous or hematogenous Other bony structures are not exempt from invasion and especially is this true of the vertebral column The print of a roentgenogram reproduced herewith will give an outline of the body exudate which caused this patient much discomfort to even put his foot down It also gives a clean-cut diagnosis of the condition

The treatment consists in cure of the gonorrheal infection of the urethra and its accompanying organs, and removal of the exudate by operation

REPORT OF CASE

A farmer aged 25 white single with negative family history had had the usual diseases of childhood but had otherwise been healthy until two years before I saw him when he contracted gonorrhea With the onset was a profuse discharge and a swelling of the penis About one week afterward he had to go to bed on account of arthritic pains in both ankles and severe pain in the back and shoulders The ankles were swollen and very tender The pain left the shoulders and back in a few days but the ankles kept the patient in bed for eight weeks When he was up and walking again the left heel seemed to be quite sensitive to pressure and since then it had been an effort for him to walk on it Roentgenoscopy revealed the cause He was treated by the urethra regularly since then I first saw him, Jan 12 1917 There were pus and shreds in all three glasses of urine Microscopically there were gonococci in the secretion from the prostate and the vesicles

The patient gave a negative history of syphilis, but the Wassermann reaction was ++++ He was put on antisyphilitic treatment and the gonorrhea was treated vigorously for four weeks He went back home feeling much better, except that the left heel had not improved in the least He was advised to return and have the bony deposits removed, as one of the previous patients under my observation had done for the same condition, with complete recovery

CONCLUSIONS

1 The bony structures of the body are sometimes invaded by the gonococcus which cause pathologic changes, with discomfort

2 Gonorrhea is credited with many distressing deeds, and justly so, in fact, it is not held responsible as often as it should be

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Taking Advantage of Home Climate—Many live work and sleep in a quite unsuitable atmosphere, and at the same time the outdoor atmospheric conditions may be very good A person may live in a locality with a favorable climate and yet actually himself live in a very inferior atmosphere Indoor climate and outdoor climate are two quite different things, and usually the outdoor climate is far the better—Asst. Surg -Gen J W Trask, *Public Health Reports*

Special Article

MEDICAL SERVICE IN THE BRITISH AREA ON THE WESTERN FRONT

THOMAS HERBERT GOODWIN, C.M.G., D S O
Colonel, Army Medical Service
ENGLAND

Since coming to the United States some two months ago, I have been asked numerous questions with regard to the conditions of warfare on the Western front, the nature of medical work, the necessity for medical men etc Some of the senior medical men in this country have suggested to me that I should write a short article for The Journal, giving information on the foregoing points, it is very difficult — if not impossible — to realize fully the strenuous and difficult conditions of modern warfare when one is far removed from the area of conflict, and it is consequently no matter for wonderment that a considerable amount of misconception exists with regard to the present campaign

ORGANIZATION

The system in the British army for the collection and evacuation of the wounded from the front line to the base hospitals is briefly as follows

With each battalion of infantry, regiment of cavalry, or brigade of artillery is a medical officer with a small detachment of medical and sanitary personnel, and suitable medical and surgical equipment Before an action this officer forms a "regimental aid post," in a dugout or position of shelter, to which the wounded of his regiment are brought by the regimental stretcher-bearers Here they are attended to, dressings are applied, fractures immobilized, etc, and, after a very short stay — probably not more than half an hour — they are removed by the personnel of the field ambulance *bearer* division to the advanced or main dressing stations, which are formed by the field ambulance *tent* division The means of ambulance transport with the field ambulance bearer division consists of twenty-seven stretcher squads, each consisting of four bearers with a stretcher, seven motor ambulance wagons, and three horse ambulance wagons

From the dressing stations the wounded are conveyed by the motor ambulance convoy, which consists of fifty ambulance cars with four medical officers, to the casualty clearing stations At the casualty clearing stations a very large amount of surgery is carried out Patients with such wounds as those of the abdomen or head are taken to the casualty clearing stations from the front as quickly as possible, in order that early operation may, if possible, be carried out under advantageous circumstances

A casualty clearing station is always situated close to a railway station, and the wounded are conveyed thence by ambulance trains to the stationary and general hospitals on the lines of communication and at the base It is difficult to lay down definite rules as to the distances between the various units mentioned above as these distances vary so much with local conditions and the military exigencies of the time being, but the following may be accepted as an average under normal conditions

1 Front line trenches to regimental aid post, 500 yards or more

2 Regimental aid post to advanced dressing station, half a mile to 1 mile.

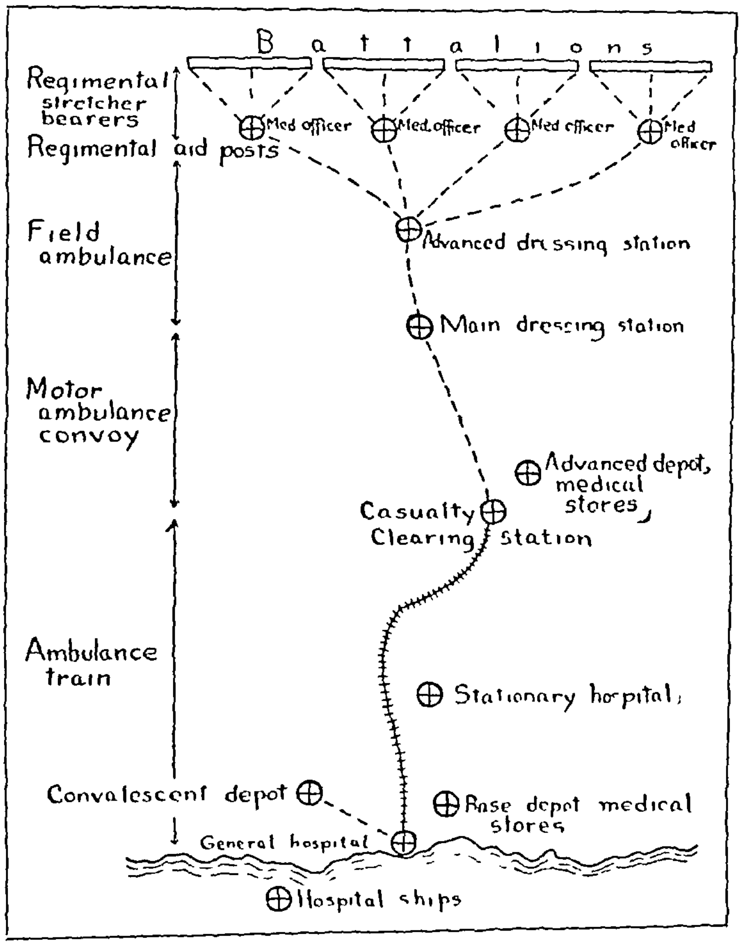
3 Advanced to main dressing station, 1½ miles
4 Main dressing station (field ambulance) to casualty clearing station, 5 miles

SUPPLIES

Our medical and surgical equipment and supplies are obtained by the various units, as required, from the advanced and base depots of medical stores, which are medical units administered entirely by the medical service

The amount of medical supplies required by an army in modern warfare is very large indeed

To mention a few details I may say that, up to the end of last year, we have furnished our armies with 37½ millions of bandages, 35,000 miles of gauze, 3,000 tons of absorbent cotton and lint, 243 complete Roentgen-ray outfits, etc In addition to these medical and surgical supplies there are many — almost innumerable articles which, although not in the authorized scale of equipment for hospitals, are nevertheless of immense value in adding to the comfort of a hospital and the consequent well-being of the patients, and everything which improves the physical and *mental* condition of a patient conduces toward his rapid recovery to health and consequently his early restoration to the fighting line



System of collection and evacuation of the wounded

Among such articles I might mention pianos, phonographs, books and pictures, games, papers, warm slippers and special articles of clothing and many other comforts

THE RED CROSS

As a medium for obtaining such articles, which to my mind are of immense value to the efficiency of every hospital, there is the magnificent Red Cross organization, which is always ready to give us every possible assistance, and whose aid also in furnishing motor ambulance cars has been immense

The work of the Red Cross in assisting the medical services in time of war is of the utmost value

DUTIES OF MEDICAL OFFICERS

A few words as to the duties and life of a medical officer in the various units

The medical officer attached to a regiment has a happy — and also a busy — life Sanitation and disease prevention will occupy a considerable portion of his time, especially during the periods when his unit is not engaged in actual fighting He will find that an earnest desire for the welfare of the men, combined with a modicum of tact, will insure any of his sanitary recommendations being cordially received and promptly acted on

His endeavors will invariably receive the fullest meed of gratitude from both officers and men

When his unit is in action he should on no account lose touch with it, and even if, at times, he can do little more than first aid, yet his presence will be of immense value and moral support to the troops with whom he is working

The officers of the field ambulances have a strenuous life, and their work is interesting and responsible in the highest degree They see everything that is going on, and, being near the fighting line, they see plenty of the stress and excitement of a modern battle

The work which they do is of extreme value to the welfare of the patients, for on the initial treatment of the wounded in the dressing stations is dependent, to a considerable extent, their subsequent progress toward recovery

For an officer who is keen on more purely professional work, the casualty clearing stations afford an immense scope in the direction of urgent surgery, abdominal and cranial operations, etc, while the base hospitals offer an enormous range of professional work and experience of every description, both medical and surgical, in addition to the numerous special departments of Roentgen-ray work, bacteriology, etc

As regards sanitation, that subject is always with us wherever we may be, from the front line to the base, so that, whatever a medical officer's individual tastes may be, and in whatever part of the field he may find himself, I think that he will always discover scope for his energies and a life full of absorbing interest

I may state here that every possible endeavor is invariably made by the authorities to meet the wishes and capabilities of the individual officer, so that — so far as military exigencies permit — every officer may find himself allotted to a post suited to his capabilities and attainments

There is at present a considerable shortage of medical men in Europe, and this shortage has been seriously felt by Great Britain The following few facts may serve to explain some of the causes of this shortage

1 Great Britain has at present on hand five separate campaigns — East Africa, Mesopotamia, Egypt, Saloniki and France

2 The British armies have increased from a comparatively few thousands to millions, and the medical service has had to expand correspondingly

3 The number of hospital beds in the British Isles alone is at present over 300,000, and this number does

not take into consideration the numerous convalescent homes and depots The number of beds in France is large and is steadily increasing In Malta alone we have over 27 000 beds and in Egypt, Salonika and the other theaters of war are large numbers

4 We are now maintaining in the field a large number of medical units, for example, over 300 field ambulances, 100 stationary and general hospitals, besides hospital trains, ships, etc

5 While not approaching the huge figures which one sometimes hears of losses in the medical service are still considerable On the western front, from the commencement of the war up to date we have had 195 medical officers killed in action, and 707 wounded, while there have been sixty-two deaths from illness

Taking all these facts into consideration, it may readily be understood that we are, in Great Britain feeling a serious shortage of medical men, and it will not cause surprise when I state that in several districts in England there is only one physician to every 5,000 inhabitants and some districts in which the ratio is only 1 6,000

One of my duties when I came over with Mr Balfour's mission was to ask for medical men and nurses from the United States temporarily to assist their British allies on the western front, and to this appeal there was a prompt and generous response Six base units from the United States are now hard at work in France, and a total of 253 medical men and 434 nurses have already gone over The assistance which they are giving our army is invaluable, and the work which they will accomplish will be enormous

May I venture to suggest that the medical profession of the United States should profit by our mistakes and shortcomings, and I would, with all diffidence and deference, point out that the American army will probably increase as ours has increased, and that the medical service will necessarily expand to a corresponding extent Consequently, it would appear to be an indisputable fact that enormous numbers of medical men will be needed, and in view of this fact, and judging from the past experiences of England, early organization, and the speedy enrolment of all available medical men would be absolutely necessary in order to avoid the possibility of a lamentable breakdown in the future

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Lepers in Colombia—The number of lepers in Colombia under detention is 4,175, according to the report of Vice Consul Claude E. Guyant of Barranquilla (*Commerce Reports*, Nov 25, 1916) who quotes the figures of the central board of hygiene in Bogota They are detained at the three leper stations Agua de Dios where there are 2 489, Contratacion, where there are 2,077, and at Caño de Loro, where there are 149 The Agua de Dios station is located near Bogota and has two hospitals for men and one for women, each with a physician and an apprentice, and each having a pharmacy They are managed by the Sisters of Charity There is also a general dispensary where the average number of patients treated monthly is 1,600 The three hospitals house 389 patients The remainder live in separate houses, some of which are privately owned There are two schools for boys and one for girls, where manual training is also taught. The Contratacion station has two hospitals with a capacity of sixty patients each There is a school for boys and one for girls, and two asylums for the children The medical work is in charge of three physicians, who also attend patients in the dispensary and in private houses The Caño de Loro station is on an island in Cartagena Bay, and houses 149 patients, and has a hospital with a capacity of twelve New and larger buildings are projected

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Clinical Notes, Suggestions, and New Instruments

OPERATIVE ANAL SPECULUM

ORVALL SMILEY, M D INDIANAPOLIS

The accompanying illustrations show a simple and efficient operative anal speculum devised to overcome the numerous difficulties usually encountered in the average anal operation It offers the following advantages

1 It is simple and easily applied after the anus has been dilated manually

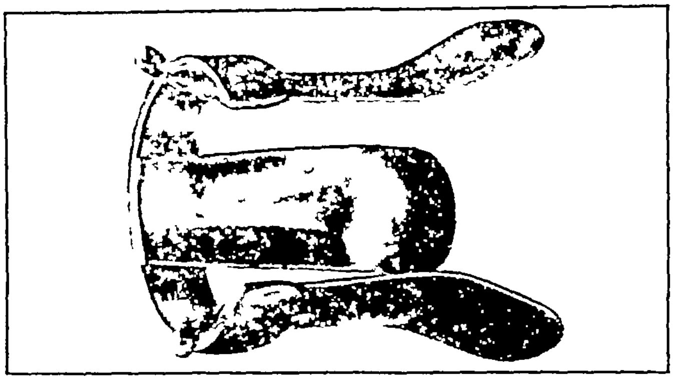

Fig 1—Operative anal speculum

2 It stays in place when once adjusted

3 It takes the place of an assistant holding a large, cumbersome instrument

4 It keeps the caliber of the anus constant during the operation

5 It is easily adjusted

6 It gives large roomy working space over any area desired

7 It is light, produces no trauma and is not in the operator's way

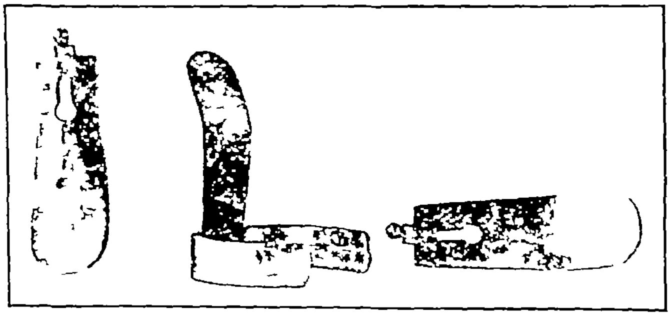

Fig 2—Parts of operative anal speculum

8 The opening in the ring gives ample room for operative procedures, and affords a clear and distinct view of the field of operation

The speculum consists of a piece of metal 1 cm wide and 3 mm thick, the shape of the letter C, with the opening 3 cm wide At the middle is attached one blade 5 cm long At the point of atachment it is 2 cm wide, and at the distal end, 2 5 cm The blades are curved outward at the distal end, the edges being rounded so they will not cut. The other two blades are attached after the first has been introduced into the anus by slipping the groove in the blade over the head of a pin on the inner side and near the distal end of the C piece This holds the blades firmly in place. Thus they are easy of access, and are easily taken off and put on

219 Newton-Claypool Building

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street Chicago, Ill

Cable Address "Medic, Chicago"

Subscription price . . . . Five dollars per annum in advance

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SATURDAY, JULY 14, 1917

DANGERS AND DISADVANTAGES IN CERTAIN WAR-TIME FOODS

The high prices and the scarcity of many common food products have naturally stimulated interest in possible substitutes either for human consumption or for feeding to the domestic animals whereby foods suitable for human use may in turn be conserved Attention has been directed from time to time in The Journal to some of the newer possibilities Our London correspondent[1] recently noted that there are not merely a few but rather dozens of different edible wild species of the animal and vegetable kingdoms, commonly distributed, easily identified and procured, and suitable to simple processes of cooking Mention was made of the edible frog, various species of seaweed, and nearly fifty esculent fungi Our correspondent ventures that persons living in the country where such supplies are easily obtainable should be able to supply, during at least three quarters of the year, two thirds of their needs from the fields, woodlands, lanes and streams in their immediate neighborhood Physicians are frequently consulted for dietary advice, and it may not be amiss to issue a warning about the dangers from certain highly undesirable foods suggested by war-time conditions

Certain newspaper and magazines in this country are advocating the use of rhubarb leaves for greens Advice to use the leaves as a substitute for spinach has been promulgated from at least one popular educational center Because the rhubarb leaves contain certain substances — presumably oxalic acid — in sufficient quantity to make them toxic at times to some persons at least, and because disastrous results have followed their culinary use, the U S Department of Agriculture has issued a warning to housewives against using this portion of the plant for food[2] How timely these instructions are is borne out by the report of a death from eating rhubarb leaves recently reported in The Journal[3]

Even the edible portions of vegetables like rhubarb owe whatever dietary advantages they possess to components other than the familiar nutrients Thus the rhubarb contains about 95 per cent of water, and the food-fuel value of an entire pound of the edible portion cannot possibly exceed 100 calories Desirable flavor, bulk, salts and perhaps vitamins must not be allowed to obscure the almost entire lack of the substantial proteins, fats or carbohydrates in such foods Precisely the same consideration applies to edible seaweeds and mushrooms The latter harbor an additional menace for those who are not thoroughly conversant with the poisonous species Every summer brings stories of poisonings from eating toxic mushrooms We are not attempting to minimize the agreeable relief from monotony which the use of such plant products may afford, but they should be used with a clear understanding of precisely what they do or do not contribute to the ration They serve as vehicles rather than as sources of energy

It may not be amiss to call attention to a semiofficial report[4] that thousands of pounds of poisonous Burma beans are being foisted on the people of the Middle West as a cheap substitute for navy beans They are said to have been imported from the Orient Although about the size of a medium shaped navy bean, the toxic species have a faint yellowish tinge with many fine lines or rays out from the eye like spokes on a wheel There are some colored ones of light brown, dark brown, mottled and speckled, various shades of brown and red brown An equally poisonous, small, flatter Burma bean is more readily distinguished from the navy bean We are warned to guard against these two beans and also other dangerous beans from the East Indies, such as the Java, which is even more deadly

The toxicity of the castor bean, containing the highly poisonous protein ricin has long been known The poisonous principle of the Oriental varieties just mentioned is said to be a glucosid which yields hydrocyanic (prussic) acid through the action of suitable enzymes Prohibition or restriction of the importation of these dangerous species into some of the countries of Europe is stated to be in force at present

THE STUDY OF CANCER IN PLANTS

In recent years the plant pathologist of the United States Department of Agriculture, Dr Erwin F Smith, has repeatedly expressed the belief that a diligent study of tumors in plants will help to solve the cancer problem His fundamental conception may be thus expressed Cancer occurs in many kinds of plants, in which it passes through an essentially parallel course of development to that of cancer in man and animals, some allowance, of course, being made for differences in the structure and development of plants His concept is, that fundamentally plants and animals are alike, that physical and chemical laws apply equally, that is, uniformly to all living things and hence that discoveries relative to the fundamental cell mechanics of animals apply equally to plants, and vice versa[1]

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[1] London Letter, The Journal A M A, May 12, 1917, p 1421

[2] Don't Use Rhubarb Leaves, Weekly News Letter, U S Dept Agriculture, May 23, 1917, p 2

[3] London Letter, The Journal A M A, June 23, 1917, p 1928

[4] Circular Letter of Information from Brookings, S D No 643, June 19, 1917

As Smith and his associates have discovered a relationship between certain plant tumors and a flagellate schizomycete named by them *Bacterium tumefaciens* they have become strongly imbued with the idea of a microbiotic genesis of cancer in man To the biologist, Smith wrote in 1916 the conclusion is almost irresistible that human cancer must be due to a parasite and that one parasite may well be the cause of the most diverse forms, as we have seen to be the case in plants

The study of the cancer problem has undergone so many evolutionary changes that any one who has followed the progress of experimental medical sciences may well hesitate to become unduly enthusiastic about even the most plausible of etiologic novelties Nevertheless it is alike interesting and desirable to follow up every promising lead for new indications of modes of approach and methods of attack The great importance of the questions at stake makes it well worth while to encounter many failures if only some progress can be made in the long run It is interesting, therefore, to note the latest indications in the pathology of plant tumors Smith[2] had suggested earlier that if crown gall in plants is a disease clearly due to the bacterium which he isolated, it ought to be possible eventually to go a step farther and determine what by-products of the organism are the direct cause of the overgrowth

A beginning in this direction has now been made It has been found that the substances produced by the *Bacterium tumefaciens* in simple culture mediums include aldehyd, ammonia, amins, alcohol, acetone, and acetic and formic acids[3] Applications of some of these by various procedures to plants subject to crown gall have actually given rise to tumors They are described as either vascularized hyperplasias, mixed hypertrophy and hyperplasia, or simple hypertrophies In them the cells are much more closely compacted than the parent cells, and free from chlorophyl The cells of the hypertrophies are frequently a hundred times the volume of the cells from which they have originated In the acetic alcohol tumors there has been a great increase in the number of the cells, that is, the development of a true hyperplasia, while in the hypertrophies the component cells appear to be the original cells greatly enlarged

Smith has called attention to the fact that among the substances enumerated are compounds, namely, ammonia, amins and fatty acids, such as Jacques Loeb[4] has observed to be efficient in starting growth in unfertilized eggs of certain lower forms Their action, he states, in all probability is purely physical, that is, due to withdrawal of water from neighboring cells by increase of osmotic pressures, whereupon the cells so acted on begin to grow, at least it is possible to obtain the same phenomenon in plants with a great variety of substances, not the product of parasites and not likely to come into contact naturally with the growing tissues Analogies may be misleading as well as useful in experimental science They are at any rate helpful if they stimulate us to adopt new points of view

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THE AVAILABILITY OF GOAT'S MILK IN PLACE OF COW'S MILK

The investigations of the past few years have given a substantial scientific foundation to the long established belief in the superiority of milk in the feeding of children even beyond the nursing age Dietary experience and rational empiricism have pointed to the unique value of this food, despite the wealth of propaganda in favor of all sorts of proprietary preparations, especially those compounded from the cheaper cereal grains Assertions that milk "cannot be tolerated" have frequently been contradicted by the institution of a modification of its quantity or percentage composition The cases of actual idiosyncrasy to milk can now be detected with some clinical precision, and allowance can be made for them Never have the unique tissue-building and growth-promoting virtues of milk been more clearly emphasized than at present when, because of the war, provision for the nutrition of many children must be made on an enormous scale not only by individual families but also by communities and even governments "A quart of milk a day for every child" is likely to be a popular slogan, as it ought to become a current practice

Along with the admitted need of milk comes the question of maintaining the supply The growing scarcity of farm hands, the increased cost of feeding milch cattle and the possible shortage of fodders suggest a consideration of any promising economic and physiologically valuable sources of milk other than cattle Goat's milk has often been proposed,[1] indeed, there are records to suggest that it has a peculiar adaptability to feeding infants and young children in cases in which they must be given artificial food, and neither modified cow's milk nor the proprietary infant foods are fed with success For several years the New York Agricultural Experiment Station at Geneva conducted an investigation of the value and use of the milch goat, regarding which few dependable data seemed to be available, despite the fact that this animal is widely used in some foreign countries Extensive analyses over long periods showed that the total solids of the milk ranged in general between 11.4 and 11.9 per cent., the fat amounting as a rule to from 3.5 to 3.8 per cent.[2] A chemical study of the goat's milk indicated no essential difference between the constitution of its casein and that of cow's milk. Marked and probably important differences were observed in the salts of the ash as compared with the ash of both cow's milk and human milk.[3]

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[1] Smith E F Jour Cancer Research 1916 **1**, No 2 Science **43** 871

[2] Smith E F Crown Gall of Plants Its Cause and Remedy Bureau of Plant Industry Bull 213 U S Dept. Agriculture, 1911

[3] Smith E. F Chemically Induced Crown Galls Proc. Nat. Acad Sc 1917 **3**, 312

[4] Loeb Jacques Artificial Parthenogenesis and Fertilization 1913

[1] Sherman D H and Lohnes H R Practical Study of Goat's Milk in Infant Feeding as Compared to Cow's Milk The Journal A M A June 6, 1914 p 806

Enough experience is on record, though much of it is in the nature of personal testimony rather than the conclusion of professional judgment, to make it not improbable that babies tolerate equally well similar amounts of goat's milk and cow's milk when used with the same diluents. We naturally turn, therefore, to the economic aspects of the milch goat problem. An annual yield of from 700 to 900 pounds of milk represents good production for selected goats. On this basis the New York statistics, in which careful account of costs was kept, show cows to be cheaper producers of milk and milk solids than goats, at least under the prevailing condition. If the goat is to compete with our dairy cattle, it must apparently be on some other grounds than those of economy in milk production.

IS THERE A CEREBRAL HEAT CENTER?

The circumstances which result in a nearly constant body temperature as the result of an accurate balance of heat production and heat loss in the organism are, to say the least, highly suggestive of some regulatory process on the part of the central nervous system. Starling[4] has remarked that whether this function of temperature regulation can be specially localized at any part of the central nervous system, so that it would be possible to speak of a heat center in the same way as we speak of a respiratory or vasomotor center, is doubtful.

It has been suggested that the thermogenic center — that responsible for regulating heat production — is situated at a lower level than the thermotaxic system which presides over and determines the balance between heat production and heat loss. Barbour[5] of the Yale University School of Medicine, while admitting that we may not give the "heat centers" too narrow an anatomic limitation, insists that it has long been recognized that the region of the basal ganglions (especially the caudate nucleus of the corpus striatum) plays an important part in the coordination of those processes which affect body temperature. The most important of these processes include (1) those tending to raise body temperature: oxidations in the muscles and other tissues (heat production), and peripheral vasoconstriction (heat sparing), (2) those tending to lower body temperature: inhibition of oxidations (lessened heat production), peripheral vasodilatation, increased respiration, and sweating (heat dissipation). He asserts that the central apparatus which coordinates these processes can, like other nervous mechanisms, be influenced by cold and heat and by drugs. Such agents can never alter the nature of the nervous response; only quantitative changes which we term stimulation and depression can be elicited.

The observations of Barbour[6] that local cooling of the corpus striatum causes increased respiratory exchanges and heat production, while warming has the opposite effect so that heat centrally applied acts as an antipyretic, point to some central localization of heat-regulating factors. Barbour and Prince[7] go so far as to assert that metabolic processes can be diminished by an agent (heat) whose activity, under the conditions of the experiment, is restricted to a limited region of the central nervous system. Heat centrally applied reduces body temperature, therefore, not only by favoring heat dissipation but also by diminishing heat production.

Recently Sachs and Green[8] of the Washington University Medical School, St. Louis, have taken issue with some of these contentions. No temperature changes could be demonstrated by them by stimulating the caudate nucleus faradically. The results of central irrigation by the Barbour method are reported to be variable, and a rise in temperature with cold or a fall with heat application could not be consistently observed. These studies, therefore, it is said, do not confirm the view that there is a cerebral heat center. Perhaps we shall act wisely for the present if we conclude, with Starling, that the facts at our disposal are still too meager to warrant any definite localization of the heat-regulating function in the central nervous system, or any such accurate analysis of the regulating function as has already been suggested.

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[2] Jordan, W. H., and Smith, G. A.: Goat's Milk for Infant Feeding, Bull. 429, New York Agr. Expt. Sta., February, 1917.

[3] Bosworth, A. W., and Van Slyke, L. L.: The Casein and Salts in Goat's Milk, Technical Bull. 46, New York Agr. Expt. Sta., December, 1915.

[4] Starling, E. H.: Principles of Human Physiology, Ed. 2, Philadelphia, Lea and Febiger, 1915, p. 1177.

[5] Barbour, H. G.: The Pharmacology of Temperature, Brit. Med. Jour., Sept. 13, 1913.

[6] Barbour, H. G.: Die Wirkung unmittelbarer Erwarmung und Abkuhlung der Warmezentra auf die Korpertemperatur, Arch. f. exper. Path. u. Pharmakol., 1912, **70**, 1.

[7] Barbour, H. G., and Prince, A. L.: The Control of the Respiratory Exchange by Heating and Cooling the Temperature Centers, Jour. Pharmacol. and Exper. Therap., 1914, **6**, 1.

[8] Sachs, E., and Green, P. P.: Further Observations on Cerebral Heat Centers, Proceedings of the American Physiological Society, Am. Jour. Physiol., 1917, **42**, 603.

Arsenic in Cremated Bodies.—A recent Japanese work reports the findings on examination of the remains of six cremated persons who had died from arsenical poisoning. Cremation is said to be almost universal in Japan. In three of the six cases the findings were positive, in another they were negative probably because too small a quantity had been used for the tests, only 40 gm. instead of the 100 gm., the amount usually used. No arsenic can be detected chemically in the intestine and excreta when no arsenical medicine or material has been used, if only the minimal amount of material is tested. If more than this is taken for the test, minute quantities of arsenic may be found due to contamination. This extraneous arsenic is usually found as an accumulation on the outside of completely disintegrated bones or fragments, but if well preserved bones are carefully cleansed on the outside this source of error may be eliminated.

Current Comment

"EAT WISELY"

There is no dearth of advice about "what to eat" or "how to cut down the meat bill" or "foods we ought to know" or similar themes in these stirring days of rising costs of living Some of the instructions are formulated in terms of menus which only a skilled housewife can easily interpret, others are expressed in the increasingly more popular language of calories with its implication of energy and consequent strength, still others abound in the platitudes of the food faker who has his 'daily column' to be filled We have rarely seen a more specific sane and clearly understandable propaganda than that recently formulated by the Bureau of Home Economics of the New York Association for Improving the Condition of the Poor[1] In a leaflet aimed to suggest such meals as will be best for growing children an expert s advice is summarized under this caption To get the best results, spend money for food as follows

1 Spend from one fourth to one third of your food money for bread cereals macaroni and rice

2 Buy at least from a third to half a quart of milk a day for each member of the family

3 Spend as much for vegetables and fruits together as you do for milk If you use half a quart of milk for each member of the family this may not always be possible Then spend as much for vegetables and fruit as a third of a quart of milk a day would amount to

4 Spend not more for meat and eggs than for vegetables and fruits Meat and eggs may be decreased with less harm than any of the other foods mentioned The amount spent for meat may decrease as the amount spent for milk increases

The Journal concurs in these recommendations

PHYSICIANS AND THE SELECTIVE DRAFT

There seems to be considerable confusion regarding the medical profession and the selective draft, and conflicting statements have been made regarding the approximate number of physicians coming within the age limits making them eligible for conscription A reliable estimate of the number of physicians subject to draft may be reached in the following manner Statistics show that the average age of students on graduating from medical school is between 25 and 26 Graduates of the last six or seven years only, therefore, would be subject to conscription The number of those graduating at an age older than 26 during the last six years would be fully, if not more than offset by those who graduated at an age earlier than 26 in years prior to 1912 In the last six years — 1912-1917 inclusive — there were 22,478 graduates Of these, 806 were women, leaving 21,672 physicians subject to conscription Of the actual decrease of physicians by death, the larger proportion is from physicians of older age It is believed that deaths of those who would otherwise be subject to conscription would be fully covered by 1,672, which would leave approximately 20,000 physicians subject to draft

AN INDICATION OF PROGRESS

The Army Medical Department recently called for bids on a list of medicaments for the United States Army There were sixty-five items Of these, sixty-four are either in the U S Pharmacopeia, the National Formulary, or have been admitted to New and Nonofficial Remedies by the Council on Pharmacy and Chemistry of the American Medical Association Of the sixty-four all are in "Useful Drugs" except three Oleum Gossypi Seminis, Pilulae Aloini Compositae and Pilulae Catharticae Compositae, the latter two being needlessly complex, irrational relics of an earlier period in medicine Such a list nineteen years ago would have contained double this number of drugs, and would have included proprietary mixtures, more or less secret in character, together with some of the shotgun variety of discarded remedies

EXPERIMENTAL RAT-BITE FEVER

The question of the causation of rat-bite fever in man was recently discussed in The Journal[1] The Japanese investigators Futaki, Takaki, Taniguchi and Osumi,[2] in contrast with those who have designated a streptothrix as the microbiotic cause of the disease, conclude that the etiologic agent is a protozoon, *Spirochaeta morsus-muris,* which they have detected in the bodies of human patients It generally disappears on recovery, only to reappear during the relapse of the characteristic paroxysms of fever Ogata was the first to transmit rat-bite fever to susceptible animals, guinea-pigs, by causing rats to bite them This has now been confirmed[3] Only a part of the rats caught at random were capable of transmitting the infection in this way A rat which did not transmit the disease to one guinea-pig by biting did not confer it on another, conversely, a rat which conveyed the disease by biting one animal would also convey it by biting another The clinical course and manifestations of the fever in bitten guinea-pigs afford most of the symptoms which are now looked on as characteristic in man There are swelling and congestion of the bitten parts, enlargement of the subcutaneous lymph nodes, fever, and loss of weight The progress of the fever appears to be less regular than is the case in human patients There are acute changes in the suprarenals and the kidneys Rats and mice can be inoculated from the guinea-pigs so that spirochetes will always appear in their peripheral blood Thus the former animals are mediums but not victims of the disease, whereas guinea-pigs are both Inoculations have also been successful in the monkey As yet the exact conditions under which the disease is transmitted by bites has not been discovered The specific spirochete has not been detected in the mouths of rats It must be recalled in evaluating all such assertions as to protozoal infection that pathogenic and nonpathogenic spirochetes have been observed in many animals The identification of the organism used in these experimental inoculations by bites and other methods must, we are told, be left to further study It seems to differ from that which Futaki, Takaki, Taniguchi and Osumi[2] found in two patients with rat-bite fever Like their organism, however, the spirochetes found by Ishiwara, Ohtawara and Tamura disappear from the blood of the affected animals as a result of the injection of salvarsan This observation is not without significance

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[1] Food for the Family, Publication 120, Bureau of Home Economics New York Association for Improving the Condition of the Poor Copies of this publication may be obtained from the New York Association for Improving the Condition of the Poor 105 East Twenty Second Street New York City at 5 cents a copy

[1] Spirochetes and Rat Bite Fever editorial The Journal A M A, May 19, 1917 p 1482

[2] The Cause of Rat Bite Fever Jour Exper Med 1916 **23,** 249 Spirochaeta Morsus Muris N Sp the Cause of Rat Bite Fever Second Paper Jour Exper Med 1917, **25,** 33

[3] Ishiwara K., Ohtawara T and Tamura K Experimental Rat Bite Fever First Report Jour Exper Med 1917 **25,** 45

PROTECTING THE INTERESTS OF ABSENT PHYSICIANS

One of the most gratifying developments of the present war situation is the manifest desire on the part of the medical profession as a whole to do everything possible to protect the interests of those members called on for active service Each issue of THE JOURNAL for weeks past has contained numerous items recording the action of various medical societies on this subject In most cases, the plan proposed is for those physicians who remain in civil practice to care for the patients of their absent colleagues and to remit a certain amount, generally one third, of the proceeds of such practice to the families of the absent physicians It is also generally agreed that physicians called out for military service shall have their patients referred back to them so far as possible, on their return to private practice Variations of this plan are reported from different organizations The Richmond (Virginia) Academy of Medicine has appointed a committee which will not only oversee the distribution of professional income, but will also assist in rerenting or subletting houses and offices for absent physicians The Oklahoma County Medical Society has adopted a variation, based on the old communistic principle "from each according to his ability" Each member has been asked to report to the secretary his gross income for 1916 He will then be asked to contribute, in proportion to his earnings, to a fund from which monthly payments will be made to physicians in active service The information furnished the secretary is to be confidential, and both the president and the secretary, who are to administer this fund, will be under bond Other variations have been suggested and it is hoped that plans will be worked out in all societies that will be fair to all and capable of simple and easy administration

THE BASE HOSPITAL AND THE ICE MACHINE

Ice is a peculiar substance with numerous uses and of varying supply A base hospital in Alaska or Siberia should naturally be able to obtain all the ice which it needs — and there has been a suggestion that some base hospital may be sent to Russia, but there is also a bare possibility that a base hospital may be sent to France or Mesopotamia — wherever that is — or to the Mexican border This statement is introductory to an incident that seems worth relating The medical staff of a base hospital in a certain city asked the local Red Cross chapter for recommendation and money to purchase a portable ice-machine One of the local Red Cross directors, having spent several vacations in France, intimated that the only use the medical staff had for an ice-machine was to utilize its product in the preparation of mint juleps and gin rickeys, not to mention vermouth and absinthe concoctions, of which those less traveled had not even heard He could see little use for an ice-machine as part of the equipment of a base hospital Unfortunately no one had informed him of the uses to which ice is put in such institutions He did not think of the ice bag, he did not know of the uses of the "cold pack" in fever, he did not realize that ice is necessary for the preservation of biologic mediums and in other laboratory and hospital work Ice is not only a valuable, but practically an essential thing in the hospital In any event, the base hospital in question secured authorization directly from Washington to purchase its machine The story is told because of the obvious moral Medical supplies, medical work, medical actions, are each best governed by medical men

"KNOCKERS" AND "KICKERS"

Most of the physicians in the training camps for medical officers are happy Ordered to duty, they severed home ties, closed their offices, made tremendous personal and financial sacrifices and departed to spend three months or even three years in intensive driving, fatiguing studying and training And yet the attitude of practically every one of them is that of a boy, out camping for a lark, with a certain seriousness of purpose to learn and to improve ever in the mental background There are a few who kicked when they received their orders, grumbled when they obeyed, fussed when they arrived in camp and "knocked" when they were not "kicking" Kicking in a human being may be an evidence of spirit and then again, as in the army mule, it may be a form of "cussedness" The kickers are not popular in camp, and even when they received the extra privileges they kicked for, no one has envied them the possession Practically all are beginning to realize that our government has faced a difficult problem in its best possible manner and are satisfied to make the best of what time and human ability have permitted Gradually army discipline and intercourse with other and better men are bringing the few grumblers into line Some of the worst "knockers" are gradually becoming the best "boosters"

Syphilis and the Army—In a recent monograph, G Thibierge of Paris, in drawing the balance sheet of syphilis, remarks that every soldier contracting syphilis now may be considered as representing at the very least one less soldier and one less mother of a family in the years 1936-1945 He insists on the necessity for hospital treatment for every syphilitic soldier during the contagious phase of syphilitic lesions The same rule should apply to officers, but may be difficult to enforce in their case It should be inevitably applied to factory workers, he emphasizes, as the danger of their infecting others is particularly acute The government has insisted on the necessity for hospitalization for syphilitic soldiers in the contagious stage (decree January, 1916), and Thibierge adds that leave of absence from the hospital should not be given

Medical Mobilization and the War

Delay in Issuing Commissions

Many physicians who made application for commission in the Medical Reserve Corps have received notice that their request for commission has been granted but have not received the commission although more than ample time has elapsed since the notice was received The delay probably is caused by the fact that the applications have to go through the regular form of entry in the Adjutant-General s Office after approval by the surgeon-general the commissions must be made out and are then signed by the Adjutant-General and by the Secretary of War During each of the past few weeks from 750 to 1 000 men have been recommended for commission in the Medical Reserve Corps alone, in addition similar commissions are being made out tö thousands of men in other departments of the service This necessarily means an overwhelming amount of work for the Adjutant General s Office for the Adjutant General and the Secretary of War We understand that so far as the Medical Reserve Corps commissions are concerned the Adjutant General s Office is at present several weeks in arrears, hence the need of patience on the part of those who are looking for their commissions Of course no one is ordered into active service until he has received his commission

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Free Vaccination for Civilians

As a means of preventing the interstate spread of diseases either by military forces or by the civilian population the United States Public Health Service has arranged to vaccinate without cost any person who may apply at certain stations designated by this department Vaccination will be given against any one or all of the following diseases smallpox, typhoid fever and paratyphoid fever If desired, a certificate of vaccination will be issued to the person vaccinated Monthly reports will be sent to headquarters giving the names of those vaccinated their addresses and the date of vaccination. Application for vaccination should be made to representatives of the United States Public Health Service at the following named points

Alabama—Fort Morgan Mobile.
Arizona—Douglas Naco Nogales, Tucson
Arkansas—Little Rock Newport
California—Angel Island Calexico Eureka Fort Bragg Los Angeles Monterey Port Hartford San Diego San Francisco San Pedro Santa Barbara Tia Juana
Connecticut—New Haven New London
Delaware—Port Penn.
District of Columbia—Washington Hygienic Laboratory
Florida—Biscayne Bay Boca Grande Cedar Keys Cumberland Sound Fernandina Jacksonville Key West Pensacola Port Inglis St. Andrew St. Georges Sound, St. Johns River, St. Joseph Tampa
Georgia—Brunswick Savannah
Idaho—Eastport.
Illinois—Cairo Chicago
Indiana—Evansville.
Iowa—Burlington.
Kentucky—Louisville, Paducah
Louisiana — Morgan City New Orleans Quarantine.
Maine—Bangor Boothbay Harbor Calais Eastport Houlton Machias Portland Rockland.
Maryland — Baltimore Cambridge Crisfield, Solomons
Massachusetts—Boston Gallops Island Gloucester New Bedford Provincetown Vineyard Haven
Michigan—Bay City Detroit, Escanaba Grand Haven, Ludington Manistee Marquette Menominee Port Huron Saginaw Sault Ste. Marie.
Minnesota — Duluth International Falls.
Mississippi — Gulfport, Natchez, Pascagoula, Vicksburg
Missouri — Kansas City St. Louis
Montana—Sweet Grass
New Jersey — Gloucester City, Perth Amboy
New Mexico—Fort Stanton
New York—Albany Buffalo, New York Niagara Falls Ogdensburg Ellis Island
North Carolina—Beaufort Edenton Elizabeth City Newbern Southport Washington, Wilmington
North Dakota—Portal
Ohio—Ashtabula Harbor, Cincinnati Cleveland Gallipolis Sandusky Toledo
Oregon — Astoria Marshfield, Newport North Bend Portland
Pennsylvania — Erie, Philadelphia Pittsburgh
Porto Rico—San Juan Ponce.
Rhode Island—Newport, Providence.
South Carolina — Charleston Georgetown, Chisolm
Tennessee—Memphis Nashville
Territory of Hawaii—Honolulu
Texas — Brownsville Del Rio Eagle Pass El Paso Galveston Hidalgo Laredo, Port Arthur
Vermont—Newport.
Virginia—Alexandria Fort Monroe, Irvington, Newport News Norfolk Richmond
Washington—Anacortes Bellingham Blaine Everett Hoquiam Marcus Oroville, Port Angeles Port Townsend Seattle South bend Sumas Tacoma.
Wisconsin — Green Bay La Crosse Manitowoc, Milwaukee Sheboygan Superior
Alaska—Cordova Juneau Ketchikan Seward Valdez.

A Sanitary Corps for the Army

The Secretary of War has approved the creation of a Sanitary Corps under the Medical Corps of the Army which will include experts in sanitation bacteriology sanitary engineering and men skilled in supply, transportation and storage in connection with medical department work This law will make it possible for the Medical Corps to make use of trained men not graduates in medicine. The total number of officers in the corps may be approximately equal to but not exceeding one officer for every 1,000 of the total strength of military forces

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Identification Tag for Personnel of the Navy

Officers and enlisted men in the United States Navy will hereafter wear a metal identification tag which will give the wearer's name and date of his birth and enlistment, and in the case of an officer, his rank and date of his appointment on one side and on the reverse side an etching of the fingerprint of the right index finger Officers of the Navy regard this as the best system of identification known The tag will be worn suspended from the neck by a wire encased in a cotton sleeve

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War Hospital Construction Fund

The following statement has been issued under the authorization of the Navy Department

President Wilson has sent to Congress the recommendation of the secretary of the navy for an appropriation of $2 200 000 for emergency hospital construction at points not now provided with hospitals or where hospital facilities are not suitable or sufficient for the needs of the navy

Surgeon-General Braisted in urging this appropriation pointed out that the Medical Bureau's original estimate of $3 200 000 was reduced to $1,000 000 in the urgent deficiency act and that the additional amount is required to meet pressing needs He said

Emergency hospital construction, now under way and approaching completion at Portsmouth N H , Newport, Philadelphia, Norfolk Charleston S C , Pensacola, New Orleans, and Great Lakes will cost nearly $1 000,000 without equipment and will therefore exhaust the present appropriation

Plans are being rapidly completed for temporary emergency hospital buildings at New York Annapolis , Jamestown, Va , Quantico, Va , Key West Great Lakes, Mare Island and Puget Sound which will cost about $1 800 000 In addition to those mentioned other hospital buildings are necessary at Portsmouth N H , Newport, and Norfolk, which will cost several hundred thousand dollars more

All the buildings mentioned as under way and contemplated are of an emergency type of construction and of a temporary character, as required by the terms of the act making provision therefor The contracts generally require completion in sixty days or less"

Fracture as a Cause for Rejection

Dr F A. Barnes of Montana asks whether a fracture of the femur or tibia which has to all intents and purposes completely recovered in the usual time without deformity, is a cause for rejection

According to 'Rules for the Examination of Recruits' 'Old ununited fractures, fractures with shortening or callous formation sufficient to interfere with function, old dislocations, unreduced or partially reduced, complete or partial ankylosis of a joint and relaxed articular ligaments permitting of frequent voluntary or involuntary displacement are causes for rejection"

Excessive curvature of a long bone, and extensive, deep or adherent scars interfering with motion are causes for rejection"

Rigidity of Examination in Various Branches of the Service

A physician inquires whether persons are accepted for one branch of the service after rejection in some other branch and if so which is the least rigid examination?

In the army all men are examined according to a definite routine examination which is practically the same for all branches of the service, varying only in questions of weight and height for the different branches of the service, and in special vision tests for some branches For infantry, coast artillery and engineers, the applicant must be not less than 5 feet, 4 inches in height and weigh not more than 190 pounds, for cavalry, he must be not less than 5 feet, 4 inches and not more than 5 feet, 10 inches, and weight not more than 165 pounds, for field artillery, the applicant must be not less than 5 feet, 4 inches and not more than 6 feet in height, and weigh not more than 190 pounds A variation not exceeding a fraction of an inch in height for cavalry and field artillery is permissible if the applicant is in good health and is in other respects desirable as a recruit

Official Publications for Medical Reserve Officers

Lieut S G Schwarz, M R C, Humbird, Wis, writes "Where may I get the Manual for the Medical Department of the United States Army? I wrote to the Superintendent of Documents, Washington, but he said they were not on hand I find that most of the articles on medical military matters refer quite frequently to this book, and if one cannot secure the reference, he is greatly inconvenienced"

Answer.—The following War Department publications will be furnished, without cost to Medical Reserve Officers, by writing the following letter

(Place Date)

From First Lieut John Doe, M R C, U S Army
To The Adjutant General of the Army, Washington, D C
Subject Requests War Department publications
1 Request that there be forwarded to me at the above address single copies of the following publications for my official use
Manual of the Medical Department, 1916
Army Regulations, corrected to April 15, 1917
Field Service Regulations
Drill Regulations and Service Manual of Sanitary Troops
Manual for Courts Martial
Circular 26 W D 1909
Circular 2 W D 1916
G O No 66 W D 1910
G O " 112 W D 1911
G O " 23 W D 1912
G O " 45 W D 1916

John Doe

Acne as a Cause for Rejection

A physician of Vintondale, Pa, inquires whether acne vulgaris of the back in a young man, otherwise of good health, would bar him from the Officers Reserve Corps According to the "Rules for Examination of Recruits" acne is not a cause for rejection unless situated on the face and so pronounced as to amount to positive deformity

Qualifications for Medical Officers and the Draft

A physician of Colorado asks a series of questions of such nature as to make a reply in The Journal seem worth while

1 What is the prospect of doctors under the age of 35 being called to service in the Medical Corps?

Answer—The age limit for the draft is 21 and 31 It has been estimated that about 20,000 physicians are subject to the draft Of the 10,000,000 persons subject to the draft, about 700,000 names are to be drawn now Of this number, 500,000 are to be selected Approximately, therefore, one in twenty of the persons registered will be drafted Hence, the physician's chance is one to a thousand

2 If a doctor applies for a commission in the Medical Reserve Corps and is accepted, does he have to serve?

Answer—The physician who accepts a commission in the Medical Reserve Corps in time of war must go where ordered and when ordered

3 Is it possible for Seventh Day Adventists to get relief from duty, such as examining troops and such other work except caring for the sick, on Saturday?

Answer.—Army officers, medical and otherwise, work when ordered to do so

4 Our denomination is planning to organize a base hospital If it does, will it be possible for a doctor of that faith to apply for a commission and be placed in said hospital if he should get his commission?

Answer—Yes Probably

How to Conserve the Food Supply

The following instructions as to what the private citizen can do toward winning the war through the conservation of food and fuel have been formulated by Mr Herbert Hoover, United States Food Administrator

Save the Wheat—One wheatless meal a day Use corn, oatmeal, rye or barley bread and non wheat breakfast foods Order bread twenty four hours in advance so your baker will not bake beyond his needs Cut the loaf on the table and only as required Use stale bread for cooking, toast, etc Eat less cake and pastry

> Our wheat harvest is far below normal If each person weekly saves one pound of wheat flour that means 150,000,000 more bushels of wheat for the Allies to mix in their bread This will help them to save DEMOCRACY

Save the Meat—Beef, mutton or pork not more than once daily Use freely vegetables and fish At the meat meal serve smaller portions and stews instead of steaks Make made dishes of all left-overs Do this and there will be meat enough for every one at a reasonable price

> We are today killing the dairy cows and female calves as the result of high price Therefore, eat less and eat no young meat. If we save an ounce of meat each day per person, we will have additional supply equal to 2,200,000 cattle

Save the Milk—The children must have milk Use every drop Use buttermilk and sour milk for cooking and making cottage cheese Use less cream

Save the Fats—We are the world's greatest fat wasters Fat is food Butter is essential for the growth and health of children Use butter on the table as usual but not in cooking Other fats are as good Reduce use of fried foods Save daily one third ounce animal fats Soap contains fats Do not waste it Make your own washing soap at home out of the saved fats

> Use one third ounce less per day of animal fat and 375,000 tons will be saved yearly

Save the Sugar—Sugar is scarcer We use today three times as much per person as our Allies So there may be enough for all at reasonable price use less candy and sweet drinks Do not stint sugar in putting up fruit and jams They will save butter

> If everyone in America saves one ounce of sugar daily, it means 1,100,000 tons for the year

Save the Fuel.—Coal comes from a distance and our railways are overburdened hauling war material Help relieve them by burning fewer fires Use wood when you can get it

Use the Perishable Foods—Fruits and vegetables we have in abundance As a nation we eat too little green stuffs Double their use and improve your health Store potatoes and other roots properly and they will keep Begin now to can or dry all surplus garden products

Use Local Supplies—Patronize your local producer Distance means money Buy perishable food from the neighborhood nearest you and thus save transportation

GENERAL RULES

Buy less, serve smaller portions
Preach the "Gospel of the Clean Plate"
Don't eat a fourth meal
Don't limit the plain food of growing children
Watch out for the wastes in the community
Full garbage pails in America mean empty dinner pails in America and Europe

If the more fortunate of our people will avoid waste and eat no more than they need, the high cost of living problem of the less fortunate will be solved

Herbert Hoover, United States Food Administrator

Safeguarding the Interests of Physicians During Military Service

In addition to those previously reported, a large number of medical organizations have taken steps to look after the material interest of those physicians who are called on by the government for medical services Among others, the Southern Oregon Medical Association, the Cincinnati Medical Lyceum, the Allen County (Ohio) Medical Society, the Connecticut State Medical Society, the San Francisco County (California) Medical Society, the Harrison County (West Virginia) Medical Society and the Wabasha County (Minnesota) Medical Society have made arrangements by which the practices of physicians called out by the government will be taken care of by members of the society In most cases, it is provided that one third of the proceeds of such work shall be remitted to the family of the absent physician and that patients, treated by other physicians during his absence, shall be referred back to him on his return Variations of this plan have been adopted in some instances The Richmond (Virginia) Academy of Medicine has established a bureau which will rerent houses, apartments and offices and maintain the insurance policies of absent members In St Louis, a registration committee has been appointed which will distribute the work of absent physicians among those remaining at home The Oklahoma County Medical Society has asked each member to report his gross income for 1916 With this as a basis, each member will be assessed a certain amount each month for the support of families of members in military service

Have The Journal Sent Direct

Medical officers on active duty in training camps or elsewhere can have The Journal sent directly to them from this office if they will inform us promptly of each change of address Address the Subscription Department

Orders to Officers of Medical Reserve Corps

ALABAMA

To El Paso Texas Provisional Field Hospital Co Lieut Octavius M Spencer Birmingham

ARIZONA

To Nogales Ariz., Capt Leon Jacob, Yuma

ARKANSAS

To report by telegraph to commanding general S D for duty and station Lieut. W A Dashiell, Little Rock

CALIFORNIA

To Presidio San Francisco for duty with Ambulance Co No 2 Lieuts Bruno I Sandow Oakland, and Lionel D Prince San Francisco

CONNECTICUT

To Camp Wilson Ft Sam Houston, Texas Lieut M J Sheahan Derby

To Ft. Benjamin Harrison Lieut F G Goodridge Pomfret Center

DELAWARE

Honorably discharged Lieut H A Cleaver Wilmington

DISTRICT OF COLUMBIA

Honorably discharged Capt J J Repetti, Washington

FLORIDA

To Army Medical School Washington D C Lieut Herbert L. Bryans Pensacola

To Jacksonville Fla Capt G E Henson Jacksonville

ILLINOIS

To Ft Benjamin Harrison Lieut. W W Coen Springfield

KANSAS

Honorably discharged Capt Samuel Murdock Sabetha

KENTUCKY

To Ft. Oglethorpe Lieuts. Morton M Moss Bowling Green and Marvin S Neal Daniel Boone

Par 100 S O 132 June 8, War D relating to Lieut Charles K Berle Louisville is revoked

LOUISIANA

Honorably dishcarged Lieut. C L Caulden Elizabeth

MAINE

Honorably discharged Lieut B Hayden Livermore Falls

MARYLAND

To Washington D C Major T C Janeway Baltimore

MASSACHUSETTS

To Allentown Pa., Lieut Albert E Small Melrose

To Army Medical School Washington D C. Lieuts. William A P Chapin and Richard A Rochford Springfield

To Washington D C Lieut Cassell C Tucker Boston and rep in person to the commandant Army Medical School for a course of instruction Lieut Charles H Watt Fall River

To Report in Person to Commanding General N E. for duty, Major Dunlap P Penhallow Boston

To 4th Engrs N A Lieut Albert A W Ghoreyeb, Boston

MICHIGAN

To Ft. Benjamin Harrison for instruction, Lieut. William J Du Bois, Grand Rapids

To home Capt Ernest K Dolman Detroit

Honorably discharged Lieut C L Washburne Ann Arbor

MINNESOTA

To Ft. Benjamin Harrison Capt. Harold L. Lamb Sauk Center

To Ft. Riley Lieut Jared W Daniels St Peter

To Washington Lieut Arthur T Henrici Minneapolis

Sick leave one month Lieut Frank H Clay St. Charles

MISSISSIPPI

To Ft. Oglethorpe for instruction Lieut David W Walley Richton

Par 39 S O 130 June 6 1917 War D relating to Capt H Greenberg Fayette, is revoked

MISSOURI

To Ft. Riley Major H C Herrick St Louis

NEW JERSEY

To Ft. Oglethorpe Capts Richard Hirsch Jersey City E J G Beardsley Spring Lake Beach Albert G Bising Weekawken and Lieut. Ord L Sands Orange.

To Home, Lieut. A. A Strasser Arlington

NEW YORK

To Allentown Pa. Lieuts Harry L. Bibby Joseph W Gardam and Morton P Lane New York City

To Allentown Pa with Ambulance Co No 7 Lieuts Max P Cowett Royal A Schaaf and Rowland P Stanley New York City

To Ft Benjamin Harrison for instruction Lieut. Constantine J MacGuire New York City

To the New York Academy of Medicine New York N Y, Capt Brooks H Wells New York City

To West Point N Y for duty Capt William H Haskin, New York City

To Report by Telegraph to Commanding General N E Dept, Lieuts Ignatius I Stein Long Island Leoe G Weishaar, Mt Vernon and Warren Wooden, Rochester

Honorably discharged, Lieuts Otto R Eichel, Albany, and J F Kanken Brooklyn

OKLAHOMA

To Nogales Ariz, Base Hospital No 5, Lieut Fenton M Sanger Oklahoma

OHIO

To Army Medical School, Washington, D C Lieut Anton B Spurney Cleveland

To Cleveland Red Cross Ambulance Co No 4, Lieut Frank S Gibson Cleveland

To Ft Benjamin Harrison Capt C C Waller Warren and Lieut H M Metcalf Elyria

Par 49 S O 140 June 18, 1917, War D relating to Capt C T Hunt Miamisburg is revoked

OREGON

To Ft Riley Lieut Ernest D Everett, Lakeview

PENNSYLVANIA

To Ft Benjamin Harrison Lieuts James M McKibbin Buck Valley and Lauren C Thomas Latrobe

To Ft Oglethorpe Lieuts Josiah T Bunting and J S Ferris Philadelphia

To New York N Y course of instruction in laboratory work, Lieut James H Austin Ardmore

To New York N Y and Report in Person to the Commanding General Eastern Department, for further orders Lieut Paul C Wittman Philadelphia

To Plattsburg Barracks N Y, Lieuts Robert H Bolling Philadelphia and C W Lincoln Wayne

To Washington D C and report in person to the commandant army medical school for a course of instruction, Lieut Henry E Keel Philadelphia

To Washington to active duty, Lieut Cyril F Lauer Pittsburgh

To 5th Regt of Engrs, Lieuts Henry C Flood and Paul H Walter, Pittsburgh

Assigned with reserve engineers, Lieut Samuel Brister Philadelphia

Honorably discharged Lieuts J L Herman Gordonville Charles A O Reilly G G Ross and J I Talley, Philadelphia

SOUTH CAROLINA

To Gettysburg Pa, Lieut Robert H Crawford Rock Hill

To Ft Oglethorpe, Major Francis L Parker, Charleston

TEXAS

To Ft Oglethorpe Lieut James S Reid Hearne

To Washington D C Army Medical School for a course of instruction Lieut Frederick S Wright Brownsville

VIRGINIA

To Boston, Lieut John W H Pollard, Lexington

To Ft Oglethorpe Capt Thomas C Firebaugh Harrisonburg

WASHINGTON

To Ft Worden Wash, Lieut Richard C. Hill, Irondale

To report by telegraph to Commanding General Western Dept for duty and station Capt Wm E Joiner Seattle

WEST VIRGINIA

To Ft Oglethorpe Lieut Calvin E Clay Martinsburg

Orders to Officers of the Medical Corps

Major M A Reasoner M C to station at Chicago

Capt M C Stayer M C to station at San Francisco

Capt J P Fletcher M C to station at Louisville

Major A M Whaley M C as surgeon at Ft Myer Va

Capt. E C Huber M C to station at Fort Snelling

Officers of Medical Corps to Washington for examination for promotion Lieut Cols Carl R Darnall and Champe C McCulloch, Jr Majors William H Moncrief and Allie W Williams Capts Raymond C Bull and Douglas W McEnery

Capt Henry P Carter M C from further duty at Ancon C Z and at the earliest practicable date to Petersburg Va for duty relieving Major John R Bosley M C who will return to proper station

Officers of Medical Corps from duty in Hawaii and to United States and report in person to comanding general Western Dept. for further orders Lieut Col Powell C Fauntleroy, Major Eugene H Hartnett Capt Lauren S Eckels and Capt. Raymond W Bliss.

Major Robert C Loving M C to station at San Antonio Texas

Officers of Medical Corps from duty in Philippine Dept to United States on first available transport and report in person to commanding general Western Dept for further orders Major John L Shepard 1st Lieuts Charles L. Gandy and William W Vaughan

Major Edwin W Rich, M C to Camp Stotsenburg Pampanga for duty relieving Major Paul C Hutton M. C, who goes to Manila for duty

Major Henry H Rutherford M C, to Manila for duty as assistant to department surgeon

Capt. William T Cade Jr M C to Atlanta Ga, as camp sanitary officer during construction of cantonments

Capt. William K Bartlett M C to Fort Des Moines Iowa for duty

Capt William R. Dear M C, to duty as attending surgeon Philippine Department with station in Manila

Capt Fletcher O McFarland M C to Manila Cuartel de Espana for duty relieving Lieut. Col James S Wilson M C who will proceed to Fort William McKinley Rizal, for duty

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest, such as relate to society activities, new hospitals, education, public health, etc)

ALABAMA

New Operating Room Provided—The city commissioners of Mobile have appropriated $10,000 for the erection of a modern operating room at the City Hospital, for the use of the clinical staff of the University of Alabama School of Medicine

Personal—Dr Seale Harris, Birmingham, who was operated on for appendicitis in New York, is reported to be convalescent——Dr Benjamin B McCleskey, Bessemer, has been appointed sanitary inspector and placed in charge of the local health office

ILLINOIS

Physicians' Association Incorporated—Papers of incorporation were issued at Springfield, June 22, for the Illinois National Physicians' Home Association

Sanatorium for La Salle County—Plans for the proposed La Salle County Tuberculosis Sanatorium have been submitted to the supervisors The institution will cost $65,000 and will accommodate about fifty patients

State to Combat Tuberculosis—Dr George Thomas Palmer, Springfield, has been appointed assistant director of the state department of health and is in charge of the defense of Illinois troops from tuberculosis, which is said to have been so prevalent in the European armies

War on Mosquitoes—The Western Suburbs Anti-Mosquito Association, which includes the suburbs of Maywood, Forest Park, River Forest, Melrose Park, Bellewood, Oak Park, the forest preserves and Aurora, will endeavor to eliminate the mosquito from the western suburbs of Chicago, by spraying crude oil on the surface of all ponds and swampy places

Appellate Court Rules on Cook County Hospital Civil Service Examinations—As is generally known, appointment to the attending staff of the Cook County Hospital is made from an eligible list obtained as the result of a competitive examination conducted by the Cook County Civil Service Commission On Dec 7, 1911, an examination was held and those who passed received notice to that effect Before the eligible list was actually prepared or posted, however, numerous complaints were made of unfairness in the methods of calling and holding the examination, and in the marking of the papers The civil service commissioners instituted an investigation and appointed a committee of physicians of Cook County to advise in regard to the question as to the fairness and justice of the markings based on experience The committee reported that it did not think the civil service commission would be justified in accepting the markings

The commission at a meeting held Sept 3, 1912, passed a motion stating that it found (1) that the examination was divided in such a manner that the applicants who were entitled to take more than one of the thirteen separate tests could not do so because these tests were held simultaneously by the examiners, (2) that some of the tests were held for alleged places which do not and never did exist, and (3) that a special committee of physicians appointed by this commission to investigate the experience markings in this examination had found after careful investigation that the standard of experience prescribed was wantonly departed from in numerous cases to the advantage of certain applicants, and that the committee had reported that they did not think the civil service commission would be justified in accepting the original markings The commission unanimously ordered that the report of the examiners be rejected and set aside, and that new applications be received

Among those who passed were several who contended that the commission had no power to enter this order, and that in doing so they were improperly influenced, that on being notified they became entitled to have their names placed on the eligible list and were entitled to appointment Suit was brought in the name of Dr Aime P Heineck et al to compel the civil service commission to reverse its action April 24, 1915, a writ of mandamus was issued against the commission in the circuit court to compel them to reverse their action canceling the examination held Dec 7, 1911, and to restore the eligible list which resulted from that examination Last week presiding Justice Goodwin of the appellate court rendered an opinion reversing the decision of the circuit court, stating that it was within the power of the commission to set aside the examination and that there is no evidence to sustain the contention that the commission was improperly influenced or acted fraudulently or dishonestly "The power of the commissioners" said Justice Goodwin, "must, of course, be determined by the terms of the statute, and while commissioners are authorized to appoint examiners, the statute expressly directs that the commissioners shall control all the examinations, and later provides that they shall investigate the action of the examiners The purpose of these provisions is clear The provisions of the statute were intended to create conditions under which appointment to positions in the county service should be on the basis of merit To this end a commission is created, charged with the duty of faithfully carrying out the provisions of the statute, and in this work it is empowered to secure the assistance of examiners, but in that connection the statute makes it very plain that it shall retain the duty of controlling the examinations and investigating the action of the examiners whom they appoint. To say that it has these powers and duties and no power to set aside an examination, which in its opinion had been irregularly or improperly conducted, would be a distinct contradiction in terms The legislators might provide that the action of the examiners should not be subject to control or investigation, but they have not chosen to do so Hence it necessarily follows that when an investigation of the action of the examiners discloses facts which, in the opinion of the commissioners, convince them that an examination has been unfairly or improperly conducted, it is not only within their power, but it is their duty, under the statute, to set that examination aside It may be argued that such a power invites abuse, but to this it may be answered that the power seems clearly and unmistakably given by the statute, and, moreover, it would seem that it is impossible to create a system for the appointment of public officials and employees, whose fair operation will not depend to some extent upon the fidelity of the commissioners appointed to supervise its workings"

Chicago

Physicians' Club Election—At a recent meeting of the board of directors of the Physicians' Club of Chicago, Dr Arthur M Corwin was elected president, Dr Henry W Cheney, treasurer, and Dr William D Napheys, secretary The other directors are Drs John Weatherson, Daniel N Eisendrath and A. Augustus O'Neill

Personal—Dr Henry Linderoth was injured in a collision between two street cars, July 7——Dr Charles F Stotz has been elected president and Dr Moses Sahud, secretary of the Northwest Branch of the Chicago Medical Society——Prof R G Hoskins of the Northwestern University Medical School has been appointed editor of *Endocrinology*, the bulletin of the Association for the Study of the Internal Secretions

Care for Soldiers and Sailors, and their Dependent Families—The following committee has been appointed to arrange for the care of soldiers and sailors of the United States and their dependent families Drs E Wyllys Andrews, Arthur Dean Bevan, Frank Billings, Joseph P Cobb, Arthur M Corwin, John M Dodson, Allen B Kanavel, Lewis L McArthur, Albert J Ochsner, A Augustus O'Neill (chairman), William E Quine, Thomas E Roberts, John A Robison, George H Simmons, Homan Spalding, Samuel C Stanton, Daniel A K Steele and Clarence L. Wheaton (secretary)

Colony for Dementia Praecox Needed—Dr William J Hickson, in his preliminary report regarding the new venture of examining for mental troubles, individuals who have been brought repeatedly before the court of domestic relations, morals court, boys court and juvenile court, states that 50 per cent of those brought into these courts have been punished more than once, and frequently several times for the same offense, and that practically all of them are feebleminded or suffering from dementia praecox He suggests that a colony for these patients be established where they can be cared for in winter and in summer, that they be scattered in groups under proper restrictions to build roads for the state and take part in other public improvements

INDIANA

Sanitary Troops Mustered In—Ambulance Company No 1 and Field Hospital Company No 1, Ind N G, at Fort Benjamin Harrison were mustered into the federal service, June 22

Personal—Dr Eugene B Mumford has been elected director and Dr Homer W Cox physician in charge of the Summer Mission for Sick Children at Fairview Settlement near Indianapolis——Dr J Rilus Eastman Indianapolis narrated his experiences in Vienna at the weekly luncheon of the Indiana University Association of Indianapolis June 25

Favors Continuous Session—The Indiana State Board of Medicine Registration and Examination has voted in favor of admitting to its examinations during the present war emergency graduates of medical schools which have continuous sessions for junior and senior classes This method shortens the time required for obtaining the degrees by about eight months since the student continues work through the summer There is no reduction in the number of hours devoted to medical study

IOWA

Floods Delay Dedication—On account of the floods the program for the opening of the Graham Hospital Centerville could not be carried out June 6 and the dedicatory exercises were, therefore postponed until June 12

Hospital Changes Owners—Drs Otto O Svebakken and Charles W Rominger have sold their private hospital at Waukon to the Nurses' Medical Benevolent Association The new management will assume charge about September 1

Woodbury County's Record of Service—Seventeen physicians of Woodbury County are in the government service or waiting to be called Eight of these are in the National Guard and nine in the Medical Officers Reserve Corps

New Health Regulations—New rules and regulations of the Iowa State Board of Health have been printed and mailed to all mayors city and township clerks health officers and county auditors of the state Any physician in Iowa who will make request to the state board of health that a copy be sent to him will receive a copy of the new rules and regulations

Des Moines Valley Physicians Meet.—The forty-sixth annual meeting of the Des Moines Valley Medical Association was held recently in Ottumwa and the following officers were elected president, Dr Charles H Magee Burlington, vice presidents Drs Laris P Torrence Blakesburg and M F Moore Ottumwa and secretary-treasurer, Dr Elias B Howell, Ottumwa (reelected)

MISSOURI

Club Election—At the annual meeting of the Medical Women's Club of Kansas City the following officers were elected Dr Dora E Bowman president Drs Alberta Moffett Green and Luella Brommel vice presidents, and Dr Adeline Goodrich Soule, secretary, and Dr Avis E. Smith, treasurer

Personal—Dr Godfrey O Cuppaidge Moberly, has been elected president of the state board of health, succeeding Dr Francis H Matthews, Liberty resigned——Dr John F Binnie Kansas City has resigned from the Municipal Hospital and health board, and has been succeeded by Dr Leslie Miller——Dr J L. Eaton has been elected superintendent of State Hospital No 4 Nevada and Dr Frank L. Long Farmington was reelected and Dr Prentiss S Tate Morley, assistant physician to the institution——Dr Marion O Biggs has been reelected superintendent of the Fulton State Hospital——Dr James C. Welch, Salem has been appointed physician to the state penitentiary——Dr Arthur C F Brown, Kansas City was severely beaten and robbed by highwaymen, recently——Dr William J Bell, St. Joseph, has returned from the western front in France

St. Louis

Personal.—Dr Frederick Hagler, who has been stationed at Grudens, Germany, for the last year, has returned to the United States——Dr George Wade Wilson has been appointed chief surgeon to the police department, succeeding Dr Harry M. Moore

NEW YORK

To Rebuild Sanitarium.—The building of St. Gabriel Sanitarium, Saranac Lake, which was destroyed by fire last January, is to be replaced by a new structure Work will be begun on the new structure next month The estimated cost of the new building is between $750,000 and $1,000,000

New York City

Diet Kitchen Needs Funds—The New York Diet Kitchen Association has issued an appeal for $10 000 with which to continue its work The association is now caring for 2,500 babies in its eight health stations

City Commends Straus Milk Stations—A resolution, recently adopted by the board of aldermen commends Nathan Straus for his establishment of milk stations in this city, which it is estimated have saved the lives of 250 000 babies

Boat Ambulance Launched—St John's Guild has launched a new 38 foot gasoline ambulance the gift of Isaac N Seligman The launch will be used to transfer patients between the Floating and Seaside hospitals maintained by the guild

Institution for Blind Acquires Site—The New York Institute for the Education of the Blind has acquired a new 15 acre site fronting on Pelham Parkway Williamsbridge Avenue, Astor and Bronxwood avenues It is estimated that the cost of the group of buildings to be erected on this site will approximate $1,000 000

New Bay Ridge Hospital—The contract for the new Bay Ridge Hospital to be erected at Seventh Avenue and Ninety-Second Street Brooklyn, has been let Only the main wing of the hospital is to be built at present which will cost $135 000 This structure will provide for sixty beds, including two free wards and several private rooms When completed several other buildings will be grouped about this wing

Women Give Hospital Unit—The New York Infirmary for Women and Children, backed by the National American Woman Suffrage Association, has offered a mobile hospital unit to the government Dr Caroline S Finley is director of this unit The organization committee has among its members Dr I von Sholly, Dr Mary Lee Edward and Dr Alice Gregory The unit starts with a nucleus of twelve doctors twenty-one nurses and three orderlies

Last Year's Poliomyelitis Epidemic—Detailed information regarding the poliomyelitis epidemic in this city in 1916 has been published by the department of health and constitutes No 16 of the *Monograph* series It contains 391 pages and is divided into thirteen chapters, dealing respectively with the history etiology epidemiology insects as carriers of the disease poliomyelitis in New York in 1916, pathology, symptomatology, diagnosis and differential diagnosis prognosis, record of treatment employed discussion of treatment and prophylaxis In an appendix are collected rules and regulations reproductions of placards leaflets press bulletins statistic tables etc Owing to the expense of publication the *Monograph* will cost $1 50 Copies may be obtained through medical book dealers or from the Department of Health, 149 Center Street

OHIO

Personal—Dr Clement N Clark Canton fell while inspecting a new building, June 25 and suffered severe contusions——Dr Leander F Cain Caldwell charged with illegal practice, was found not guilty June 23——Dr Henry Baldwin has been reelected superintendent of the District Tuberculosis Hospital, Springfield, and Dr Robert H Grube Xenia has been choosen as president of the board of trustees

Promotions—The following promotions have been made at the School of Medicine of Western Reserve University Drs Paul J Hanzlik to be assistant professor of pharmacology, Cyrus Harwell Fiske, to be assistant professor of biochemistry, Roy Wesley Scott, to be associate in physiology, Julius Moses Rogoff, to be senior instructor in experimental medicine for two years, Roy Bartlett Metz to be associate in ophthalmology, Joseph Edgar McClelland, to be instructor in pediatrics, Carlos Eugene Pitkin to be instructor in diseases of the nose, ear and throat, Chester Dale Christie, to be instructor in medicine, Marion Arthur Blankenhorn, to be instructor in medicine.

Cincinnati

Merger of City Boards Proposed—Merger of the health and public welfare boards of the departments of the city, with one head having direct supervision, was advocated recently before the charter commission by Dr Otto P Geier, formerly superintendent of charities and corrections

Personal—Dr Wade W Oliver, assistant professor of bacteriology in the University of Cincinnati, has been appointed professor of bacteriology in the College of Medicine of Long Island College Hospital, Brooklyn——Dr Joseph Ransohoff has resigned on account of the age limit fixed by the War Department as director of the Cincinnati District

Base Hospital Unit and has been succeeded by Dr William Gillespie——Dr John M Adams has been reelected department medical director of the Grand Army of the Republic——The degree of Master of Science has been conferred on Dr John M Withrow by the Ohio Wesleyan University, Delaware——Dr Charles S Dreyer has been commissioned lieutenant, M C, Ohio N G, and assigned to the Third Ambulance Company

OREGON

New Examiners Appointed—D D Young, McMinnville, has been appointed by the government a member of the state medical examining board as a representative of the osteopathic school——Ross A Farr, Astoria, has been reelected a member of the Oregon State Board of Pharmacists

South State Physicians Meet.—At the annual meeting of the Southern Oregon Medical Association, held in Grant s Pass, May 8, the following officers were elected president, Dr William W P Holt, Eagle Point, vice president, Dr George C. Knott, Glendale, and secretary-treasurer, Dr Alvane C. Seely, Roseburg (reelected) Medford was selected as the next place of meeting

Eugenic Board to Organize—Dr R E Lee Steiner, Salem, has sent out notices calling together for organization the new state board of eugenics, provided for in the bill passed by the last legislature and composed of the members of the state board of health, the superintendents of the two state hospitals, the warden of the state penitentiary and the superintendent of the state school for feebleminded

Personal—Capt George E Houck, Roseburg, M C, Ore N G, has been appointed chief surgeon of the medical department with rank of major——Dr J Ray Pemberton, Salem, has been appointed physician to the state prison, in place of Dr W Carlton Smith, called in the national service——Dr Jesse P Truax, mayor of Grant's Pass, suffered a fracture of the clavicle, caused by the overturning of his automobile near Merlin recently——Capt Waldo L Cheshire, M C, Ore N G, Eugene, has been promoted to major and detailed as chief surgeon in the Oregon Artillery

PENNSYLVANIA

Laboratory Transferred—The new William H Singer Memorial Laboratory, Pittsburgh, was formally opened and presented to the Allegheny General Hospital by G Harton Singer, May 23 The laboratory, which has cost over $250,000, is the gift of Mrs Singer, her son and her two daughters

Personal—Dr John B Carrell, Hatboro, has been reappointed consulting physician to the State Hospital for the Insane at Norristown——Dr Warren H Butz, Allentown, has been appointed physician to the Traylor Shipbuilding Corporation Cornwells, where he has a camp of 3,000 men, and where the corporation is building a hospital for the use of its employees

Tuberculosis Society Merged with Charities Board—At the annual meeting of the Bethlehems Branch of the Pennsylvania Society for the Prevention of Tuberculosis, June 11, it was decided to ratify the question of placing the work of the society in the hands of the Associated Charities Organization of the Bethlehems Dr William P Walker was reelected president and Dr Walter D Chase, first vice president of the organization

Medical Society Holds Patriotic Meeting—At the annual outing meeting of the Allegheny County Medical Society, at the Pittsburgh Field Club, there was a patriotic demonstration Addresses were made by Col T H Goodwin, of the English Commission, Drs Franklin H Martin, Chicago, Charles A E Codman, president of the state association Samuel G Dixon, president-elect, and Henry D Jump, president of the Philadelphia County Medical Society

Personal—Dr Henry H McIntire has been promoted from assistant medical examiner for the Baltimore and Ohio system at Connellsville to medical examiner for the company at St Louis——Dr Lawson has been appointed assistant medical examiner for the Baltimore and Ohio system at Connellsville.——Dr George W Gault, Marysville, has been appointed coroner of Perry County for a second term——Dr Bradford A Booth, chief medical inspector in the Bureau of Infectious Diseases, Pittsburgh, retired, June 15, after twenty-nine years spent in the city service——Dr Clara S Keiser has been appointed superintendent of the Neversink Mountain Tuberculosis Sanatorium, Reading, succeeding Dr Addison M Rothrock, called into the United States service——The University of Pittsburgh has conferred the degree of LL D on Dr Thomas Alexander Forsythe, founder of the Forsythe Dental Infirmary, Boston

National Guard Changes—Commissions have been issued for the following medical officers Major Eugene Swayne, Philadelphia, assigned Field Hospital No 3, Major Daniel E Sable, Pittsburgh, assigned First Field Artillery, Lieut Robert B Mackey, Lackawanna, assigned Thirteenth Infantry, Lieut Alvin E Bulger, Pittsburgh, assigned Eighteenth Infantry, Lieut Theodore A Little, Erie, assigned Sixteenth Infantry, Lieut Harry Z Hibshman, Philadelphia, assigned Field Hospital No 3, and Lieut Joseph J Furner, Pittsburgh, assigned Ambulance Company No 1——The following appointments are announced in the medical section of the Pennsylvania National Guard Reserve Majors George M Coates and Ross H. Skillern The resignation of the following medical officers has been accepted Lieuts William C Le Compte, Bristol, Thomas M Toomey, Francis F Borzell, Philadelphia, Meade Wiant, Pittsburgh, Charles W Shirey, Pittsburgh, and Swithin Chandler——Lieut Charles G Steinmetz, Jr, has been transferred from the Third to the First Infantry——Ambulance Company No 3 was mustered into the service at Lancaster, May 31

Philadelphia

White Collection Given to University—Mrs J William White, widow of the late distinguished surgeon, has presented to the University Museum all the archeological and ethnological collections of her husband

Yellow Fever Death—Yellow fever caused the death of Jose Mariato, a Spanish sailor on the Danish steamship *Bryssel,* which has been held at Reedy Island Quarantine Station since July 1 This vessel was bound to Philadelphia from Antilla, Cuba, with a cargo of raw sugar Mariato died yesterday afternoon, after he had been taken to the Government Hospital on Reedy Island It is thought that he contracted the disease in the interior and not at the port of sailing It is not believed that any of the other men on the ship are suffering from the disease, however, the authorities held the ship in quarantine until July 8

Personal—Dr Peter F Moylan has been made a Knight of St Gregory by Pope Benedict XV——Dr Alfred Gordon delivered the commencement address at the College of Physicians and Surgeons, Boston, on "Race Betterment, Based Upon Principles of Physical and Mental Prophylaxy"——Dr Alonzo E Taylor, since 1911 connected with the medical laboratory of the University of Pennsylvania, has been appointed by Secretary of Commerce Redfield as a member of the advisory board of the Export Control Council——Dr Ernest LaPlace was selected as chief orator for the municipal Independence Day celebration at Independence Hall

CANADA

Hospital Opened—On July 5, Right Honorable Walter Long formally opened the new extension of the Ontario Military Hospital, Orpington, Kent, England The capacity of that hospital is now doubled, with accommodation for 2,800 patients

Compulsory Military Training Approved—The board of governors of the University of Manitoba, Winnipeg, have approved compulsory military training for all male students It is also proposed not to admit any unmarried male of 20 years to attend lectures or take examinations, unless he furnishes satisfactory reasons why he has not enlisted

Workmen's Compensation, Ontario—The Workmen's Compensation Board of Ontario has sent to all practitioners in the province memoranda as to the amendments made in the act at the recent session of the Ontario Legislature The board, after July 1, 1917, will pay all professional charges, nursing and hospital when necessary, of a reasonable nature, for a period not exceeding one month from the disability The doctors' accounts are to be rendered direct to the board, and it is expected that the charges will be reasonable, not exceeding what would ordinarily be charged to the workman if he himself were paying the account

Personal.—Capt Allen E. Thompson, M C, C A M C, Coaticook, Que, who has been home on leave of absence from France, has returned On the first day of the big push on the Somme last year, while attending wounded under fire he was awarded the Military Cross——Dr Marchant B Whyte, superintendent of the Isolation Hospital, Toronto, has been appointed director of medical services in connection with the board of health of that city His responsibility now extends over the Isolation Hospital the schoolchildren and the various clinics maintained by the public health department——Lieut-Col George R Philip Toronto, recently returned from overseas, has been appointed A D M S of the Petawawa Camp near Ottawa Ont——The transfer of Capt J D H Barnett A M C, from casualties and his appointment as medical officer of the 248th Battalion, have been approved

GENERAL

Anesthetists Offer Services—The American Association of Anesthetists at its fifth annual meeting adopted resolutions offering its services and moral support to the government in the interest of efficient anesthesia in the army and navy, especially in the instruction of those who are to have charge of the administration of anesthesia in the service.

Public Health Reserve—Resolutions appropriating $300 000 for the creation of an officers reserve corps in the United States Public Health Service, and providing for the pay of officers of that service detailed to war duty with the army navy and coast guard were passed June 18, by the Senate, and sent to the House of Representatives

Bequests and Donations—The following bequests and donations have been recently announced

Lakeside Hospital Cleveland $200 000 by the will of Washington S Tyler Cleveland one half of which is to be used for constructions and the income from the other half for the maternity to be conducted in connection with the hospital

Washington University, St Louis $1 000 000 donated by the General Educational Board, to finance research in surgery medicine and pediatrics.

St Louis Society for the Relief and Prevention of Tuberculosis between $9 000 and $10 000 the proceeds of a baseball game June 8

St Lukes Hospital New York City a bequest of $7 500 to endow a bed in perpetuity by the will of Anson Wales Hard

Lake View Hospital Chicago Childrens Home Lafayette Indiana and Home Hospital Lafayette Indiana equal parts of a bequest of $150 000 by the will of Mrs Nicholas Box Lafayette Indiana on the death of her husband

Lakeside Hospital Cleveland $1 000 000 St Vincent s Charity Hospital Cleveland $200 000 Cornell University Medical School, New York City for its endowment fund $500 000 by the will of Col Hazard Payne

Episcopal Hospital Philadelphia $5 000 by the will of Mrs Sarah M Lewis

Annals of Medical History—The *Annals of Medical History* is a new venture in journalism The first number contains the following articles

'The Scientific Position of Girolamo Fracastoro 1478? 1553 with Especial Reference to the Source Character and Influence of His Theory of Infection by Charles and Dorothea Singer

'The Greek Cult of the Dead and the Chthonian Deities in Ancient Medicine" Fielding H Garrison

'The Three Characters of a Physician Enricus Cordus

Voltaire s Relation to Medicine' Pearce Bailey

An Unpublished Bronze Ecorche Edward Streeter

Burke and Hare and the Psychology of Murder Charles W Burr

Hebrew Prayers for the Sick C D Spivak.

Laryngology and Otology in Colonial Times, Stanton A Friedberg

In addition there are editorials and book reviews The book is artistically printed in large type on pages 12½ by 8½ and contains numerous illustrations most of which are reproductions from old books The *Annals* is to be issued quarterly and is edited by Dr Francis R. Packard of Philadelphia the author of 'History of Medicine in U S' The staff of Associate Editors includes some of the leaders in the study of medical history in America as well as Sir William Osler of England It is published by Paul B Hoeber, New York

FOREIGN

Eighth Pan-American Congress—It is announced that the eighth Pan-American Medical Congress is to be held at Buenos Aires in September, 1918

Medical Students in Switzerland—The *British Medical Journal* states that the five universities of Switzerland have a total of 1 901 medical students enrolled, including 827 foreign students Only 105 of the 291 women students are Swiss

Exchange of Tuberculous War Prisoners—The *Policlinico* relates that the Red Cross at Rome and the Red Cross at Vienna have arranged for the exchange between Austria and Italy of all war prisoners affected with tuberculosis, whatever the stage of the disease

Mail between America and Italy—The *Policlinico* of June 10 states that its files of American exchanges are complete to date the only difference between war and peace times so far in this respect being that sometimes the issues of two or three weeks are received together

Ascoli Succeeds Baccelli at Rome—The University of Rome has called V Ascoli, professor of medical pathology at the University of Pavia to the chair of clinical medicine which has been vacant since the death of Baccelli Professor Ascoli is the editor in chief of the *Policlinico* of Rome, founded by Baccelli and Durante and now in its twenty-fourth year

Requirements for Professional Course in Spain—The *Medicina Contemporanea* of Lisbon mentions that the Spanish government by a decree issued May 4, authorizes matriculation in the Spanish university of those with diplomas from foreign universities At the same time it is specified that this confers no right to practice in Spain or its colonies

Physicians Appointed Life Members of Austrian House of Lords—According to a news item republished in the *Nederlandsch Tijdschrift*, of the fifty-five new life members recently appointed to the upper house of parliament in Austria, three are members of the profession the two great surgeons, Profs A von Eiselsberg and J von Hochenegg and the pathologist, Prof Anton Weichselbaum

Scarcity of Glycerin in Italy—The military authorities have notified specifically the various medical organizations of the country warning them to use their influence that physicians refrain from prescribing glycerin except when nothing else can be used as a substitute, as glycerin is needed in manufacturing munitions A special military board has charge of the toluol-benzol-glycerin supply

Interned Soldiers in Switzerland—The *Riforma Medica* states that the number of war prisoners interned in Switzerland far surpasses 30 000 the figure arbitrarily agreed on at first and that it has been decided, therefore, to return some of the interned to their home land They are to be selected principally among those at first supposed to be tuberculous but now cured The respective governments guarantee not to call on these soldiers for further military service Switzerland it is also stated has arranged for an interchange of prisoners between the belligerent countries Five thousand are thus to be selected for interchange from among the permanently disabled the fathers of more than three children, and soldiers with mental disease

Asylum for Orphans of Physicians in Spain—The *Medicina Contemporanea* relates that a recent government decree provides for the establishment of an institution to serve as a home for needy orphans of physicians Half orphans are also eligible and the motherless children of disabled physicians and orphans whose grandfather was a physician The institution is to be called the Principe Asturias para huerfanos de medicos Part of the expense of the institution is to be defrayed by a stamp tax. Physicians are to affix a special 10 cent stamp to death certificates and a 40 cent stamp—to be paid for by the patient—in certificates for inability from sickness etc. The stamps are not required on certificates made out for the actually indigent

Asphyxiating Gas Bombs from Airplanes—The Public Health Service at Milan has issued a circular with directions of what to do when airplanes drop bombs on the city The people are told not to seek refuge in cellars, but in the middle stories of houses on account of the danger from asphyxiating gas bombs The windows are to be left open, to prevent injury from breaking glass but if an odor of gas is detected the windows and doors should be shut tight and people should stand erect and hold the children high Cloths wet with water should be held over mouth and nose if obliged to pass through the gas The local Red Cross has also on sale masks something like those worn by the soldiers at the front, to protect against drift gas The mask is of a special polyvalent type, protecting against all kinds of asphyxiating gases, including phosgen, which is the one most dreaded as it is invisible

Deaths in the Profession Abroad—**O O Malm**, Christiania, Norway who turned from the practice of medicine in 1890 to organize the veterinary system of Norway, which he guided to the last He was also member of the Christiania city council and at one time of the legislature. He was 63 years old——**Major J M Atkinson**, chief of the British government medical department at Hong Kong until his retirement in 1912 Since the war broke out he has been organizing military hospitals in England——**J H Bartlet** of Ipswich England, aged 88 His father and grandfather before him had been physicians at the same place and leaders in hospital work and endowments and in municipal administration——**R H Brew**, Chew Magna, aged 55——**A. F**

Codd, Bromley, aged 60——Lieut **L C Scudamore**, aged 47——Capt. **J J Weaver**, chief physician at the Curran camp, aged 54——Lieut. **R W Vaughan**——**A Biondi**, instructor in medical pathology at the University of Naples and author of a textbook on medical symptomatology and other works, aged 71——**L Picqué**, chief surgeon of the Asile Sainte-Anne at Paris——**L Beurnier**, a surgeon of Paris, aged 56——**F Le Dantec**, the biologist-philosopher who has published twenty-five volumes on various fields of biology, "Mechanics of Life," "Heredity," "Destiny of Man," etc, besides numerous journal articles——**W B Thorne**, London, a well known specialist in heart disease——**W H Calvert**, Scotland, aged 57——**R Bentham**, retired, inspector-general of hospitals and fleets of the British navy, aged 70——**W Le Page** of Guernsey, aged 76——**A H McCracken** of Falkirk, aged 52 The more recent casualty lists in Italy bear the names of **G Tamborelli** of Venice, aged 29, Capt **A Restagno da Altare**, Lieut **L Antonini**, **V Machiavelli**, **A Magistretti** and **D Coda** In France, **S Salles**, aged 22, **Sarazin**, chief of the casualty hospital at Begles In England, Major **W G Porter**, Capt **F J Frere**, Capt **O Hairsine**, Capt **D R King**, and Capt **W A Smith**

Candy Containing Cholera Germs Thrown Down from Austrian Airplanes in Italy.—The *Riforma Medica* of Naples reproduces a rush telegram sent by the commander of the army forces at Bologna to the commander at Codigoro It states "The candy (*confetti*) thrown down by the Austrian aviators in their raid on Codigoro the eleventh inst has been analyzed in the laboratory of medical pathology at the University here (Bologna) and cholera bacilli have been found The examination is not complete and possibly other germs may be discovered besides Signed Gen E Escard" The Codigoro local authorities have warned the populace and ordered all such articles found to be brought to the local headquarters, and also to keep all open wells thoroughly covered (Codigoro, on the map, is nearly 50 miles due south of Venice)

Before accepting this story as actual fact, it should be remembered that the cholera vibrio is sensitive toward dessication and that its resistance is small If dried, it dies in two hours Incidentally, the books tell us that it is not transmissible by aerial infection If the above story is true, this scientific statement is no longer reliable

LONDON LETTER

London, June 17, 1917

The War

THE ARMY MEDICAL SERVICE

In an interview with Mr Edward Marshall, the American correspondent Sir Alfred Keogh, director-general of the Army Medical Service, described the work which has been accomplished, and expressed his appreciation of the assistance which America has already rendered and will be able to render in greater quantity "In this greatest of all wars," said Sir Alfred, "one of the greatest of all episodes is the fact that the medical service has been restricted at no time either in money or in material Lord Kitchener gave me an absolutely free hand Men at the head of any medical department must have a free hand if the medical work of that campaign is to be properly carried out Before the war we had gone a bit further than America has ever gone in the way of medical preparations for a great conflict We had organized the civil medical profession for military purposes This was our great territorial medical organization When the regular army surgeons left the country with the expeditionary force, all that was best in the civilian profession was already organized to take their places in the immense military work necessary at home, and continually to supply men for vacancies as they occurred abroad One of my many responsibilities was to ascertain the absolute fitness of all to whom appointments were given There is a tendency among young surgeons to hope that if a war comes it will give them experience in operative surgery It has been my business to see that no man who I would not be willing to have operate on myself in case of an emergency is given an opportunity to operate on a soldier Every soldier operated on finds ready for the work the best available surgical talent At least every supervising surgeon is and long has been a man with a real reputation We had to bring into the war organization a set of advisers on mental affections and neurasthenia, matters of much greater importance than in any previous conflict Further, a sanitary committee was devised to advise on all technical matters, and a special sanitary committee was organized for service in the East Another step was the creation of a special committee and the invention of new appliances for the conduct of gas defense We have investigated the carrier problem in dysentery with results which have had notable effects in prevention Men who have had dysentery are not allowed to remain in the ranks until examined so frequently that it is certain they are not carriers To accomplish this we have had to congregate in special camps thousands of men, keeping them constantly under observation of bacteriologists What has been accomplished is shown by this very week's report Notwithstanding the size of our army, there are only three typhoid cases, fifty-four cases which may be typhoid, and twenty-two cases of paratyphoid Continually we are ready for emergencies If bulletins show signs of typhoid at any point, everybody specially qualified to deal with it swoops immediately on that spot and the outbreak is extinguished We have organized our specialists very carefully One group, for example, waits in England ready for cerebrospinal meningitis among the army, while the government has a similar group equipped for work among civilians The greatest problem of all has been furnishing quick help to the wounded Here the motor has been of immense value We could not conduct the medical department of this war without motors Men hit in the trenches are in the hospital, roughly speaking, within two or three hours" Sir Alfred Keogh said that if he were asked to give advice to America it would be to trust Surgeon-General Gorgas and to urge the civilian population to work in as close harmony as possible with the army medical service "Above all organize slowly, and don't rush it I would emphasize the importance of taking the brains of women very seriously Women have done magnificent work here, and to them none owes a greater debt of gratitude than I do"

MOTOR HOSPITAL SHIPS ON THE TIGRIS

The climate and peculiar geographic conditions of Mesopotamia have rendered the problem of transport of the wounded a special one which has only recently been fully solved The great waterway, the Tigris, is navigable up to Bagdad, a distance of 550 miles For service on it a new type of hospital ship has been built in England The length of this ship is no more than 160 feet, its beam about 30 feet, and so slight is the depth of the hull that the three decks surmounted by a light sun deck, seem to rise sheer out of the water to a great height The principal factor in the design is the light draft of the vessel, which when working, will amount to only 2 feet, 7 inches of water The main and upper decks form two hospital wards The main deck is fitted with tiers of hospital cots, some being specially wide and long for the treatment of serious gunshot fractures To insure light and free ventilation with warmth in winter and coolness in summer, the sides of the lower wards are enclosed with teak framing having upper panels of splinter-proof glass arranged in the cottage window fashion and so contrived as to act as windcatchers in the summer heat and to exclude cold and rain in winter The upper deck is intended for convalescents and is provided with a promenade and seats The speed of the vessel is about 10 miles an hour, so that the journey to the base may take from four to eight days Everything needed in a hospital is to be found on board At the fore end of the upper ward is a spacious operating theater The vessel is equipped with a refrigerating plant for supplying ice and with an aerating machine for making aerated waters

THE MANAGEMENT OF CASES OF NEURASTHENIA AND ALLIED DISORDERS IN THE ARMY

The number of cases of neurasthenia which have occurred in the war is now considerable Most of them are due to concussion—shell shock, Of 160,000 men now receiving pensions, a percentage of 15 suffer from functional nervous disease A special medical board has been formed to examine all discharged soldiers suffering from neurasthenia with a view to awarding gratuities or recommending pensions A certain number of the men have not sufficiently recovered to be able to earn a livelihood For these, homes of recovery have been organized in different parts of the country The methods adopted in these homes are 1 An attempt is made to gain the confidence of the patient and to persuade him to adopt an optimistic frame of mind 2 Remedial methods, such as massage and electricity are undertaken 3 Outdoor work and recreation are supplied French intensive gardening has been found to be an excellent means of treatment

PARIS LETTER

Paris, June 14, 1917

The War

CONFERENCE TO STUDY THE PROBLEM OF THE REEDUCATION OF WAR CRIPPLES

This conference was organized by a Franco Belgian commission (The Journal Feb 17, 1917, p 559), and the inaugural meeting took place in the presence of the president of the republic. Among the papers of the first section, which was devoted to the subject of physical reeducation, were reports by Dr A de Marneffe on physiotherapeutic services and by Dr A Imbert professor of physiotherapeutics on the medical faculty of Montpellier on the value of employment at a trade with respect to physical reeducation

Dr Marneffe emphasizes the following points 1 It is desirable to persuade surgeons to evacuate their wounded much earlier to the institutes of physiotherapy without waiting for the so called irreparable cicatrization of wounds 2 Therapeutic gymnastics must not be practiced by other than a competent personnel with medical training (physicians, medically trained instructors and medical students) 3 Centers of university instruction in therapeutic gymnastics, similar to the one in Stockholm should be created 4 Therapeutic gymnastics should be taken up by the wounded as soon as possible and thoroughly trained physical directors should be placed in the large surgical hospitals at the front where they will render better service than is accomplished with mechanotherapy 5 In mechanotherapeutic treatment the method and the prescriptions of G Zander should be scrupulously followed. 6 In accordance with the principles and practice of rational physical reeducation only competent persons should be employed as aids and assistants in the rooms devoted to mechanotherapy 7 Pedagogic gymnastics or motorpathic reeducation should be in charge of trained physical directors, and should be carefully supervised by a physician versed in physiotherapy 8 In an institute of physiotherapy reeducation with a functional basis must not be supplanted in any way by vocational reeducation Functional reeducation should be here accorded first place It should be entirely completed before it is replaced by the training which has a new occupation for the patient in view In an institute of physiotherapy, reeducation solely from a vocational standpoint must take an auxiliary position It should be regarded as an adjuvant of the physical treatment, and must remain subordinate to this Likewise it must be prescribed with prudence and with a full knowledge of its import, and it must be carefully supervised and controlled by the physiotherapeutic expert It must not be given full rights except in cases in which all attempts of physiotherapy have plainly failed

According to Imbert, employment at a trade should be regarded beyond any possible doubt as an effective agent in physical reeducation of the wounded who have not yet reached an age at which their powers of mind and body are definitely fixed Such trade employment however, cannot in all cases supply the place of proper mechanotherapy if judiciously planned As is the case with mechanotherapy, the choice of a particular trade from the standpoint of suitability belongs to the medical domain since the work to be performed is a therapeutic agent Again as is true of mechanotherapy the results will vary according to the good will displayed by the patient, and according to the manner in which the execution of the work is supervised

In the second section Leon de Paeuw dealing with the question of vocational reeducation presented a report giving data on trade selection He expressed his opinion to the effect that trade selection should lie with commissions, each composed of a physician a close student of social pedagogy and a technical expert all possessing a practical knowledge of matters pertaining to reeducation. Patients should be subjected to a thorough medical examination from the triple standpoint of anatomy, physiology and clinical evidence They should be rigorously questioned in order to bring out complete information in regard to their knowledge, their previous occupation their tastes and aptitudes the number of their dependents their ultimate plans for the future, and their economic condition The principle will doubtless work out somewhat in this manner The men, after having worked in the shops of the school for the purpose of orientation and of learning their special aptitudes, will practically choose for themselves their new trade. These men should, however, be guided by the members of the commission, and especially by the physician, whose duty it will be to decide whether or not the practice of the trade chosen is consistent with the physical condition of the subject The commission will endeavor to interest every wounded man in his new trade by pointing out to him in a concrete manner the possibility of establishing himself in a given place with a definite hope of success The wounded man, having thus decided on his new trade, will be admitted to the proper workshop If, after a short period of trial he shows the necessary aptitude, he will be retained, if not he will again be brought before the commission The commissions which have for their purpose the aiding of wounded men in the choice of a trade must be actuated by the following considerations 1 Unless it is contrary to the best interests of the mutilated men, they should be allowed to readjust themselves to their old trade or occupation or to a related trade that would be less fatiguing 2 As far as possible, they should be returned to the same surroundings 3 They should become artisans rather than factory workers and they should not be directed toward trades that are overcrowded already, but toward trades in which man-power is most needed 4 Purely utilitarian prosthetic apparatus should not be forced on mutilated men against their will 5 Men who have lost an arm, especially men with a dislocated shoulder who have sufficient intellectual ability should not be directed toward manual pursuits, but should be allowed to choose employment not requiring manual skill

The fifth section was devoted to the question of the blind the deaf, and patients suffering from serious disturbances of the central nervous system De Lapersonne, professor of clinical ophthalmology at the Faculte de Medecine de Paris, presented a report on the reeducation of those blinded in war This as a whole comprises three successive stages (1) preliminary reeducation, (2) reeducation properly so called and (3) the return home

As regards preliminary reeducation, de Lapersonne is of the opinion that it should commence as soon as possible after the wound is inflicted and be directed mainly by the attending physician since the latter is in a better position than any one else to make the patient understand and accept the situation Preliminary reeducation should be, at the outset of a purely material nature, with a view to accustoming the patient as soon as possible to an indispensable physical and mental hygiene The character of the assistance rendered will depend on the social class to which the patients belong This preliminary reeducation is already in force in all small training shops for the blind which have been established in certain hospitals at Paris and also in the provinces Reeducation, properly so called, is worked out in France in the special schools established by the state or by private enterprise The first and most important of these is the Maison de convalescence des soldats aveugles, rue de Reuilly The establishment of this school in the annex of the Hospice national des Quinze-Vingts is due to the efforts of M Brissac This school opened with an attendance of forty, which shortly increased to 200 Soon other schools were added At present, throughout the provinces, notably at Amiens Bayonne, Bordeaux, Caen, Chartres Clermont-Ferrand, Dijon Lyons, Marseilles Montpellier, Nantes Saint-Brieuc, Toulouse and Tours, there exist schools for reeducation which are intended to admit blind soldiers who come originally from these respective localities In these schools the instruction varies greatly It may be classified as instruction in manual arts and as preparation for intellectual pursuits Among manual arts the most common are brush making, basket work, shoemaking, massage, cooperage mill wrighting, molding of aeroplane wheels, polishing of crystal glass stoppers, machine knitting weaving, pottery, etc Among the intellectual pursuits one may mention more particularly telephony, with slightly modified standard apparatus, music and the related occupations, such as tuning and manufacturing of pianos, typewriting etc It goes without saying that all the blind, while they are being instructed in some trade will be taught the Braille system and also, if occasion demands, various methods which have been devised as supplementary to this In this connection the system recently introduced by the ophthalmologist Cantonnet deserves particular mention by reason of its simplicity, the ease of its acquisition and the important service it is capable of rendering as regards communication between the blind and the seeing Furthermore, the problem of reeducation has not been neglected in such matters as pertain to the mutilated blind and to those still possessed of partial vision The former, when possible, are fitted with appropriate apparatus to aid them in their work. As for the latter, it seems to be the general opinion that the best plan will be to establish special schools for them

It is of the highest importance that the blind be not retained too long in the school for reeducation The time spent in this school will vary from six to eight months (it will rarely be longer) according to the instruction that they are to receive. On leaving this institution, the blind may be divided into four classes 1 Those who can return home, which will be the largest class, constituting 70 per cent at least Agricultural and urban workers will return to their own firesides and found a family 2 Those who have no family or relatives, or who cannot take up their former life, for one reason or another, but who are otherwise good workers These will be able, by means of their pension and their earnings, to live in proximity to their old home—as far as possible in the country, where they will find more comfort under better economic conditions, and where they will be able easily to walk about without a guide, which is indispensable for laborers or urban workers going to and from work. 3 Those workers who would not be able to conduct their own affairs, but would need constant direction They can be placed in charge of some of their comrades, or a patron worthy of such confidence 4 A small number, scarcely 10 per cent, incapable of working, or of any continuous endeavor Under this head come the completely incapacitated (the wofully mutilated and the mental sufferers) The necessity of separate homes and retreats for such as these is self-evident Some of these patients will naturally be put in soldiers' homes

Dr F Chavanne of Lyons read a report on the deaf According to him, permanent total deafness, or nearly total deafness, as the result of war injuries is fortunately very rare, reaching scarcely 2 per cent of the cases When, however, one has to deal with one of these deaf and mutilated men one must resort to reeducation, giving the preference to the lip-reading method This special instruction must be given by teachers in institutions for the deaf and dumb and not by teachers with insufficient training This instruction in lip-reading should be continued after the war, as long as those rendered deaf by the last battles require it.

SPECIAL PRIVILEGES GRANTED MEDICAL STUDENTS CALLED TO THE COLORS

M Bremer, member of the Chambre des deputes, has reminded the minister of public instruction of his repeated promises to grant medical students who have been called up certain privileges as regards completion of their studies, and Bremer has asked (1) whether it would be possible to adopt, as of this date, such measures as would permit students called up to pursue their studies in accordance with the means at their disposal, (2) whether it was feasible to issue such instructions to the medical faculties throughout the country as would permit them to count as regular intramural study to the extent of twenty-four months, as far as the winning of credits is concerned, such time as they had spent in hospitals previous to their mobilization, either while going through their "stage," so called, or while serving as interns or dressers in hospitals, (3) whether, in case it should be impossible to give credit for work done *in absentia*, it would not be in keeping to permit those who had completed their researches and written their reports, also to pass their final examinations To these questions the minister of public instruction has thus replied

Medical students whose studies have been interrupted by mobilization will be permitted to benefit by certain special privileges long since promised and confirmed by the circular of the minister of public instruction which appeared in the *Journal officiel*, April 17, 1917 But, in order to be equitable, these privileges must be considered all together, when once hostilities have been terminated, moreover, these privileges will necessarily vary according to the duration of the mobilization, the time which shall mark the end of hostilities and the character of the studies pursued previously The minister of public instruction can, as of this date, give the assurance that when the proper time shall come to apply these special privileges, all due account will be taken of services rendered by medical students who have been called to the colors, whether in the capacity of interns or visiting students (dressers) in hospitals, or as assistants in the hospital units at the front As for examinations, medical students who have been called up have never been prohibited from presenting themselves for examination, provided always that the scholarship to which the examinations are to give sanction has been acquired in a regular manner before their enlistment, and that the military authorities controlling their actions shall allow them the necessary facilities for taking them

MODIFICATION OF MEAL HOURS

Dr Bergonie, professor of biologic physics at the Faculte de medecine de Bordeaux, some time ago called the attention of the Academie des sciences to the advantages which a rational modification of our meal hours would offer (The Journal, May 16, 1914, p 1570) At a recent meeting of the academy he brought up the subject again He thinks that in order to be in accord with our needs from hour to hour as regards heat and mechanical work, the storing up of energy by means of alimentation ought to take place at about 7 30 a m, in the form of the principal meal of the day consisting of from 1,500 to 2,000 calories, and at about 6 p m of a secondary meal consisting of from 1,000 to 1,200 calories Leaving out of consideration the variation in meal hours at different epochs and among different peoples, an experience of nearly ten years has convinced him that it is not only rational, but also simple and easy to accustom our system to this change of meal hours and of their relative importance, and that it results in many advantages from the standpoint of health If one chooses the warm season for the adoption of this new time schedule and this readjustment of the alimentary ration, a season during which the energy value of this ration is minimal, and if one restrains oneself, partaking only of a light meal at 6 or 7 p m., a few days will suffice in order to have a good appetite in the morning, one or two hours after rising, and to feel, at noon, only an aversion for food According to Bergonie, there is no physiologic reason why the day's work of eight hours, beginning at 9 a m and ending at 5 p m, for example, may not all be accomplished without any midday meal, leaving thus sixteen consecutive hours of liberty to the laborer or to the employee

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Marriages

Dudley Almonte Smith, M D, Oakland, Calif, to Miss Florence Carol Allen of Spokane, Wash, in New York, recently

Edward Austin North, M D, Newport, Ky, to Miss Pauline Masterson of Carrollton, Ky, at Covington, Ky, June 20

Lieut William Roy Dillingham, M O R. C., U S Army, Sabetha, Kan, to Miss Ada Hobble of Liberal, Kan, June 28

Theodore Peters, M D, Chambersburg, Pa, to Miss Gertrude Miriam Lenhardt of Norristown, Pa, June 26

Edmund Roger Samuel, M D, Mount Carmel, Pa, to Miss Emily Gemellia Snyder of Strasburg, Pa, June 30

William Lawrence Burns, M D, to Miss Anita Reinhard, both of Cumberland, Md, at Baltimore, June 21

Arthur King Bennett, M D, Marquette, Mich, to Miss Margaret Collin of Penn Yan, N Y, June 20

Charles T Reid, M D, West Mineral, Kan., to Miss Carrie Welch of St Paul, at Girard, Kan, June 2

Fred B Welch, M D, Janesville, Wis, to Miss Elsie May Douglass of Covington, N Y, June 20

Hermon Oscar McPheeters, M D, to Miss Ethel Anderson, both of Redwood Falls, Minn, recently

Surg Allen Donald McLean, U S Navy, to Miss Lillian Marion Barnes of New York, June 26

Edward G Schussler, M D, Oak Lawn, Ill, to Miss Grace E Hart of Mount Forest, Ill, June 20

Robert Kent Finley, M D., Xenia, Ohio, to Miss Florence Gamard of Jackson, Mich, June 23

Frank Joseph Parizek, Denton, Mont., to Miss Grace E Thompson, at Denton, June 17

Neal Joseph Conan, M D, to Miss Arline Mooney, both of Syracuse, N Y, June 26

John Harrison Fisher, M D, to Miss Frances Lillian Turner, both of Williamsport, Pa, June 20

Charles Allen Neafie, M D, to Miss Effie Ethel Wallace, both of Pontiac, Mich., at Detroit, June 20

Allan Churchill Woods, M D, Baltimore, to Miss Anne Powell Byrd of Gloucester, Va, June 19

Walter George McGuire, M D, to Miss Frances Elizabeth McCormick, both of Chicago, June 20

Deaths

Lieut -Col George Durfee Deshon, M C, U S Army, Boston, Bellevue Hospital Medical College 1890, University of Pennsylvania Philadelphia, 1893, aged 52, a Fellow of the American Medical Association, the only officer of the Medical Corps of the Army who was a graduate of the United State Military Academy, Chief Surgeon of the Northeastern Department died in his apartment in Boston, June 24 Colonel Deshon was made second lieutenant of the Twenty-Third Infantry in 1886 and resigned in 1890 He was commissioned lieutenant and assistant surgeon in the army, May 5 1892, five years later was made captain and assistant surgeon on Dec 5 1904 he became Major M C and on Aug 6, 1912 was promoted to lieutenant colonel He served as surgeon of the Eleventh U S Volunteer Cavalry from August 1889 to March, 1900, took part in the China Relief Expedition in 1900 and was also a surgeon of U S Volunteers from March 1901 to February 1903 His most recent assignments were as lecturer and professor on hygiene in the Drake University Des Moines Iowa in the surgeon-general's office Washington D C as commander of the Army and Navy General Hospital Hot Springs Ark and in the Panama Canal Zone in charge of the Ancon Hospital

Brooks Hughes Wells, M D., New York, College of Physicians and Surgeons in the City of New York 1884, aged 57, a Fellow of the American Medical Association vice president of the American Gynecological Association a member of the New York Academy of Medicine once president of the Medical Society of the County of New York, captain M O R C U S Army editor of the *American Journal of Obstetrics and Diseases of Women and Children* emeritus professor of gynecology in the New York Polyclinic associate surgeon to the Woman's Hospital in the State of New York, consulting gynecologist to Beth Israel Hospital and consulting surgeon to the Brattleboro (Vt) Memorial Hospital, died in the Norwalk (Conn) Hospital July 6 from injuries received in a collision while bicycling near his country home at Southport Conn., two days before.

Ferdinand Anson Stillings, M D, Concord N H Dartmouth Medical School Hanover 1871 aged 68 a Fellow of the American Medical Association formerly president of the New Hampshire Medical Society visiting surgeon to the Margaret Pillsbury and Woman's Memorial hospitals Concord, chief surgeon of the Boston and Maine system for thirty years surgeon-general on the staff of Governors Tuttle and Rollins one of the most prominent surgeons of New England, died at his home June 22

William S Hoy, M D., Wellston Ohio Jefferson Medical College, 1879 aged 61 a specialist in surgery, a member of the state legislature from Jackson County, formerly president of the American Association of Railway Surgeons and the International Association of Railway Surgeons local surgeon of the Cincinnati Hamilton & Dayton road, for thirty years chief surgeon of the Hoy Hospital Wellston was stricken with apoplexy while walking in Columbus Ohio, June 13 and died a few minutes later

George W Sutton, M D, Cleveland Okla Cincinnati College of Medicine and Surgery 1867 aged 73, for several years a member of the board of regents of the Oklahoma State University Norman, one of the founders of the Bartlesville, Okla. Hospital, for twelve years surgeon at the Osage Indian Agency Pawhuska Okla , died in the Bartlesville Hospital, May 23, from uremia

William Henry Harrison Sias, M D, Ellisburg, N Y , New York University New York, 1882, aged 76, for three years school commissioner for twelve years coroner of Jefferson County and for two terms president of the village of Ellisburg, and justice of the peace, acting assistant surgeon U H P H and M H. Service for several years, died at his home, June 16

Joseph L Abt, M D, Chicago, University of Michigan, Ann Arbor 1892, College of Physicians and Surgeons, Chicago 1893 a Fellow of the American Medical Association, and instructor in Northwestern University Medical School and a member of the staff of the Post-Graduate hospital, died in Eagle Wis., June 28, after a nervous breakdown

Jacob David Wurtz, M D, Modena, N Y , Geneva, N Y, Medical College, 1867, Bellevue Hospital Medical College, 1867, aged 71, county clerk of Ulster County for twelve years and for two terms a member of the legislature from the second district, a director of the State of New York National Bank Kingston, died at his home, April 26, from cerebral hemorrhage

Henry Green Preston, M D, Brooklyn, Bellevue Hospital Medical College, 1869, aged 69, medical director of St Martha's and Bethesda sanatoriums from 1892 to 1894, for several years surgeon to the Brooklyn Homeopathic Hospital and electrotherapeutist to the Cumberland Street Hospital, died at his home, June 21, from heart disease

Henry Albert Fox, M D, Gosport, Ind , Starling Medical College Columbus, Ohio 1881, formerly a Fellow of the American Medical Association, a member of the Indiana State Medical Association, aged 54, fell from a barn-loft at his home, June 16, and died the next day from concussion of the brain

Wesley Turner, M D, Santa Fe Ohio, Starling Medical College, Columbus, Ohio 1881, aged 62, formerly a member of the Ohio State Medical Association, died at his home, June 19 from the effects of a gunshot wound of the heart self inflicted it is believed, with suicidal intent, while of unsound mind

Esther Lydia Wilhelmina Wright Nippes Marbourg, M D, Johnstown, Pa Woman's Medical College of Pennsylvania, Philadelphia 1882, aged 86, one of the incorporators of the Johnstown Memorial Hospital Association died at the home of her grandnephew, in Johnstown, May 29, from bronchitis

Gilbert Tennent, M D, Atlanta Ga , University of Nashville Tenn 1885, aged 52, a surgeon in the Confederate service during the Civil War and thereafter a practitioner of Marietta Ga., and of McAlester, Okla , died in the Soldiers' Home Atlanta, May 25

Joseph Francis Tearney, M D, Baltimore, University of Maryland Baltimore 1879, aged 62, a Fellow of the American Medical Association medical examiner for the Baltimore and Ohio system since 1884 and chief medical examiner since 1912 died at his home, June 25

William T Herring, M D, Iola Fla , Atlanta, Ga Medical College 1887, aged 57, for many years a practitioner of La Grange Ga but since his retirement an orange grower in Florida, died at the home of his sister in La Grange, May 29 from acute gastritis

Benjamin F Synder, M D, Camden Ind , Medical College of Indiana, Indianapolis, 1879, aged 68, a Fellow of the American Medical Association and a charter member of the Carroll County Medical Society, died at his home, May 13, from heart disease

Bert Leon Richardson, M D, Gorham N H , University of Vermont, Burlington 1892, aged 38, formerly a Fellow of the American Medical Association, a member of the New Hampshire Medical Society, died at his home, May 4, from lobar pneumonia

Albert Mortimer Wilber, M D, West Unity Ohio, University of Michigan Ann Arbor 1866 aged 80, formerly a Fellow of the American Medical Association, a veteran of the Civil War, died in the Sandusky, Ohio Soldiers' Home, about June 17

James Fletcher McKinstry, Jr, M D, Gainesville, Fla , Kentucky School of Medicine, Louisville 1892, aged 48, a Fellow of the American Medical Association, and prominent as a surgeon of Florida, died at his home, June 13, from tuberculosis

Anna Lukens, M D., New York, Woman's Medical College of Pennsylvania, Philadelphia, 1870, aged 73, for several years resident physician at the New York Nursery and Child's Hospital, Staten Island, N Y, died at her home, June 16

Thacker V Walker, M D, Arlington, Tex , Jefferson Medical College, 1854, aged 85, surgeon in the Confederate Army during the Civil War, and later postmaster of Quanah, Tex , died in the Home for Aged Masons, Arlington, June 3

William Herman Bell, M D., Bellevue, Ohio, University of Michigan Ann Arbor, 1892, aged 46, formerly a member of the Ohio State Medical Association, died in Dr Reed's Hospital, Cincinnati, May 24 after an operation on the colon

Felix H Pipes, M D, Waynesburg, Pa , Wooster, Ohio, Medical College 1879, for many years an employee of the government in Washington, D C., but for two years past a resident of Kansas, died June 6, after a surgical operation

Fred Greene Wood, M.D, Mansfield, Pa , Jefferson Medical College, 1895, aged 49, a Fellow of the American Medical Association, died at his home, April 6, from lobar pneumonia

Wilbur Laurin Hutchison, M D, Hazleton, Pa, Jefferson Medical College, 1891, aged 51, physician in charge of the State Free Tuberculosis Dispensary, and physician for the United Charities in Hazleton, died at his home, June 11

Evan Williams, M D, Sugar Notch, Pa, Jefferson Medical College, 1885, formerly a Fellow of the American Medical Association, a member of the Medical Society of the State of Pennsylvania, aged 61, died recently at his home.

Charles Joseph Duffy, M D, Long Beach, L I, N Y, College of Physicians and Surgeons in the City of New York, 1883, aged 59, for several years chief surgeon of St Michael's Hospital, Newark, N J, died at his home, May 22

Loren Edgar Rex, M D, Wichita, Kan, John A Creighton Medical College, Omaha, 1899, aged 41, a member of the West Virginia State Medical Association, died in his office, in Wichita, June 20, from cerebral hemorrhage

Christopher Seymour, M D, Northampton, Mass, University of Michigan, Ann Arbor, 1869, aged 73, a member of the Massachusetts Medical Society for forty-eight years, died at his home, May 19, from heart disease

Oscar Houck, M D, La Crosse, Wis, Jefferson Medical College, 1896, aged 57, formerly a Fellow of the American Medical Association, died at his home, French Island, La Crosse, June 12, from pernicious anemia

Frank Wilder Rastall, M D, Chicago, Loyola University, Chicago, 1907, aged 40, a veteran police ambulance surgeon of the city, was instantly killed, July 2, in a collision between his ambulance and an automobile truck

Orlando E Black, M D, Wilsonville, Ala, University of the South, Sewanee, Tenn, 1900, aged 41, a Fellow of the American Medical Association, died in Birmingham, Ala, March 13, from encephalitis

George William Betts, M D, Pulaski, N Y, New York University, New York, 1880, aged 58, a Fellow of the American Medical Association, died at his home, April 18, from cerebral hemorrhage.

William Scott Keys, M D, Los Angeles, Vanderbilt University, Nashville, 1909, aged 30, formerly a Fellow of the American Medical Association, died at his home, June 20, from heart disease.

Hiram K Whitner, M D, Chicago, Jefferson Medical College, 1859, aged 81, surgeon of United States Volunteers during the Civil War, for many years an inventor, died at his home, June 13

George C Brooks, M D, Sunbury, N C, College of Physicians and Surgeons, Baltimore, 1884, aged 57, formerly a Fellow of the American Medical Association, died at his home, June 11

Charles Edward Buck, M D, Boston, Tufts College Medical School, Boston, 1903, aged 58, a Fellow of the American Medical Association, died May 11, from chronic interstitial nephritis

John David Vaughn, M D, St Joseph, Mo, National University, St Louis, 1916, aged 25, an intern in the Ensworth Hospital, St Joseph, died in that institution, June 23, from nephritis

Frank Valentine Stutzke, M D, Detroit, Michigan College of Medicine and Surgery, 1904, aged 39, city physician of Detroit from 1907 to 1909, died in Harper Hospital, Detroit, May 14

Russell D Adams, M D, Monrovia, Calif, Long Island College Hospital, Brooklyn, 1864, aged 76, for more than thirty years a resident of California, died at his home, June 11

Charles E Gilbert, M D, New York, New York Homeopathic Medical College, New York, 1870, aged 68, formerly chief surgeon of the Atlantic Yacht Club, died at his home, June 18

George Montgom[illegible] Chamberlin, M D, Chicago, Rush Medical College, 18[illegible], aged 73, for many years a practitioner and pharmacist of Chicago, died at his home, June 30

Howard Robertson St[illegible]tton, M D, Victory, N Y, Baltimore Medical College, 1908, aged 40, died in Cato, N Y, June 2, from the effects of poison, accidentally self-administered

William J Cheany, M D, Petersburg, Ill, Rush Medical College, 1892, aged 47, formerly a member of the Illinois State Medical Society, died in Hot Springs, Ark, June 7

Edmund Rufus Young, M D, Brenham, Tex, Tulane University, New Orleans, 1871, aged 73, died in the John Sealy Hospital, Galveston, June 17, after a surgical operation.

James G Ward, Bloomington, Ind (license, Indiana, 1897), aged 71, for thirty-five years a practitioner of medicine, a veteran of the Civil War, died at his home, June 17

Pembroke M Cowles, M D, Chardon, Ohio, Cleveland University of Medicine and Surgery, 1874, aged 76, a veteran of the Civil War, died suddenly in Chardon, June 12

Elizabeth Louise D'Artoise-Traver-Francis-Hilton, M D, Brooklyn, United States Medical College, New York, 1881, aged 77, died at her home, June 14, from nephritis

Charles Guy Reily, M D, Los Angeles, Missouri Medical College, St Louis, 1883, aged 58, a specialist in diseases of the eye, ear and throat, died at his home, May 26

Sophia Meindermann Hartley, M D, Ann Arbor, Mich, University of Michigan, Ann Arbor, 1865, aged 84, died at the home of her daughter in Milwaukee, June 15

Edgar W Brown, M D, Orange, Tex, Tulane University, New Orleans, 1883, aged 57, twice mayor of Orange, an oil and lumber magnate, died at his home, June 16

Albert Ashmead Bockius, M D, Merchantville N J, University of Pennsylvania, Philadelphia, 1867, aged 67, died at his home, April 14, from cerebral hemorrhage

Thomas Andrew Dundas, M D, Elmira, N Y, New York University, New York, 1878, aged 61, at one time coroner of Chemung County, died at his home, May 27

Peter Gregory Cotter, M D, Los Angeles, Albany Medical College, 1867, aged 60, a Fellow of the American Medical Association, died at his home, June 16

Spencer De Forest Hinman, M D, Grand Rapids, Mich, New York Homeopathic Medical College, New York, 1877, aged 66, died in his apartment, May 22

Martha Marcella Norris, M D, Fostoria, Ohio, University of Michigan, Ann Arbor, 1876, for half a century a practitioner, died at her home, June 14

Nelson Mowton Smith, M D, South Danville, Pa, University of Pennsylvania, Philadelphia, 1882, died recently at his home, from cerebral hemorrhage

Paul Reinhardt Wohlar, M D, Salt Lake City, Rush Medical College, 1912, aged 30, died in Washington, D C, May 28, from a nervous breakdown

Nathan G Harold, M D, Carmel, Ind, Medical College of Indiana, Indianapolis, 1881, aged 71, died at his home, May 7, from capillary bronchitis

Thomas J Hoskins, M D, Edenton, N C, University of Virginia, Charlottesville, 1886, aged 53, also a pharmacist, died at his home, in May

James Augustus Page, M D, Pittsburgh, Howard University, Washington, D C, 1906, aged 50, died at his home, June 1, from neuritis

Charles Ault, M D, Montreal, Que, McGill University, Montreal, 1855, aged 83, died at his home, March 4, from cerebral hemorrhage

Eunice Cyrus Freeman, Pulaski, Tenn, University of Tennessee, Nashville 1901, died at this home, June 9, from cerebral hemorrhage

Darius Rowe, M D, Akron, Ohio, Medical College of Ohio, Cincinnati, 1872, aged 74, died at the home of his daughter in Akron, May 28

Joseph Stein, New Orleans (license, Louisiana), aged 66, for forty-two years a practitioner of New Orleans, died at his home, May 28

Samuel Jones, M D, Neodesha, Kan, American Medical College, Eclectic, Cincinnati, 1857, aged 92, died at his home, June 10

W N Fleetwood, M D, Cochran, Ga, Albany (N Y) Medical College, 1858, aged 82, died at his home, May 4

O H P Slayton, M D, Senatobia, Miss, Medical College of Augusta, 1886, died in Clarksdale, Ark, May 19

J P Bailey, M D, Indianola, Miss, Louisville Medical College, 1882, aged 57, died at his home, May 7

Edward Baxter Sloss, Oxford, Miss (license, Mississippi, 1906), aged 40, died at his home, about June 6

Ferdinand F Dawn, Knoxville, Tenn (license, Tennessee, 1889), aged 73, died at his home May 28

Hercules Ogle, Wabash, Ind (license, Indiana, 1899), aged 73, died at his home, June 10

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

TRINER'S AMERICAN ELIXIR OF BITTER WINE

Report of the Council on Pharmacy and Chemistry

Triner's American Elixir of Bitter Wine is a wine to which bitter drugs and laxatives have been added Though evidently intended for public consumption it is also advertised to physicians, and consequently the Council publishes this report

Some recent advertisements read

> It Acts Well and Is Very Palatable These are the reasons why so many physicians recommend TRINER'S AMERICAN ELIXIR OF BITTER WINE Free from any chemicals Prepared from bitter herbs roots and barks of eminent medicinal value and pure natural red wine A safe relief in auto intoxication constipation weakness etc Price $1 00 At drug Stores. Samples gratis upon request only to physicians
>
> A Laxative Tonic In cases of constipation and its sequels auto intoxication weakness and nervousness you should try *Triner's American Elixir of Bitter Wine* This preparation consists of Cascara Sagrada Dandelion Gentian Root with Licorice in Pure Red Wine as a base with Aromatics

Triner's American Elixir of Bitter Wine is put up in bottles said to hold 1 pint 5¼ fluidounces The label declares the presence of from 16 to 18 per cent of alcohol by volume and states that no special tax is required by the laws of the U S for the sale of this medicinal preparation The circular contains the following recommendations for its use

> It should be used in all cases calling for a safe evacuation of the bowels without weakening the body or causing any pain or other discomfort in loss of appetite nervousness and weakness
>
> Triner's American Elixir of Bitter Wine consists of two principal ingredients viz Red Wine and Medicinal Herbs
>
> Red Wine strengthens the intestines and regulates their work It also increases the appetite stimulates and strengthens the body
>
> Use Triner's American Elixir of Bitter Wine always when a thorough cleaning out of the intestines is needed Arrange the dose to suit your condition and your habits
>
> In Chronic Constipation the dose of Triner's American Elixir of Bitter Wine should be increased or taken oftener
>
> Many Female Troubles are caused or aggravated by constipation and ladies should always pay good attention to this fact '

In addition to Triner's Elixir of Bitter Wine the circular —in English Polish Russian Spanish and other languages —advises the use of Triner's Angelica Bitter Tonic Triner's Red Pills Triner's Liniment and Triner's Cough Sedative

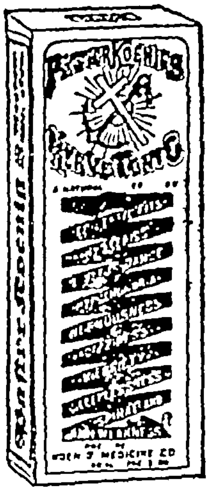
The composition of this wine —some bitter drugs a laxative and a tannin-containing constipating red wine—and advertising propaganda all tend to the continued use of this alcoholic stimulant and thus to the unconscious formation of a desire for alcoholic stimulation As the medical journal advertisements may lead physicians to prescribe this secret and irrational preparation and thus unconsciously lead to alcoholism, the Council authorized publication of this report

Editorial Note The following 'medical journals'—we use the quotes' advisedly—have carried advertisements of the Triner preparation in some or all of their 1917 issues

Medical Herald (St Joseph Mo)
Medical Fortnightly (St Joseph Mo)
Medical Sentinel (Portland Ore)
Therapeutic Record (Louisville Ky)
Western Medical Times (Denver Colo)
Urological and Cutaneous Review (St Louis Mo)

SOME MISBRANDED NOSTRUMS*

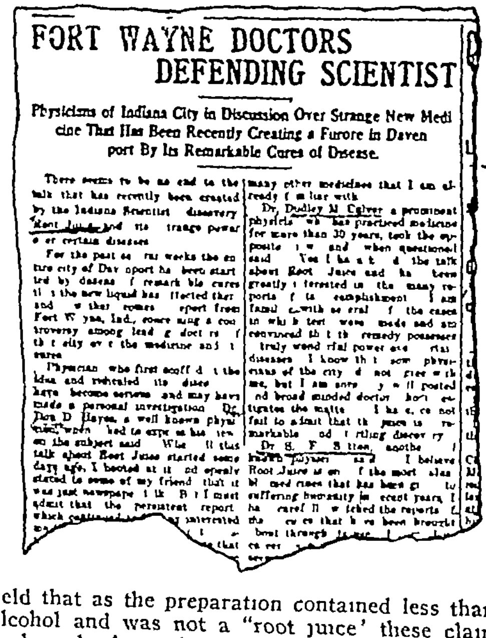
Poland Wine Bitters—Maryam, Walter and Casmir Struzynski of Chicago, who had traded under the firm name, Struzynski Bros , sold "Poland Wine Bitters," which, according to the federal chemists, was essentially a wine to which emodin-bearing and other unidentified drugs had been added. The stuff was labeled so as to convey the impression that the product was made at Chenstohow, Poland, according to the discovery of the Pauline Fathers, when as a matter of fact, it was made in the United States The false and misleading label resulted in the charge of misbranding to which the defendants pleaded guilty They were fined $100 and costs —[*Notice of Judgment No 4156*]



Koenig's Nerve Tonic—The Koenig Medicine Company, Chicago Ill made a preparation called "Pastor Koenig's Nerve Tonic" The government declared that the stuff was misbranded because the curative claims made for it were false and fraudulent and were applied knowingly for the purpose of defrauding purchasers It was claimed that the preparation was "A Natural Remedy for Epileptic Fits St Vitus Dance Dizziness Inebriety Spinal and Brain Weakness" Other equally ridiculous claims appeared on the package The Koenig Medicine Company appeared as claimant The court entered judgment of condemnation and forfeiture and ordered that the product should be delivered to the claimant after the cost of the proceedings had been paid and a bond of $200 executed, one of the conditions being that the product should be relabeled under supervision of a government official —[*Notice of Judgment No 4531*]

Mrs Edwards' Infant Syrup—This baby killer was manufactured by one William H Raser, Reading, Pa It contained morphin and alcohol and was sold as a remedy for dysentery, diarrhea and summer complaints in children The claims were declared false and fraudulent and made in reckless and wanton disregard of their truth or falsity Raser pleaded guilty and was fined $50 —[*Notice of Judgment No 4471*]

Root Juice Compound—This product was marketed by the Root Juice Medicine Co, Fort Wayne, Ind and the label declared the presence of 20 per cent alcohol The government held that as the preparation contained less than 13 per cent. alcohol and was not a "root juice' these claims were false and misleading, further the authorities held that the claims that it was a 'blood purifier" and would "strengthen and build up the system" as well as improve digestion and relieve "the strain upon the kidneys" were false and fraudulent. As no one appeared as claimant for the 72 bottles that had been seized, the court ordered that the product should be destroyed —[*Notice of Judgment No 4356*]



FORT WAYNE DOCTORS DEFENDING SCIENTIST

Physicians of Indiana City in Discussion Over Strange New Medicine That Has Been Recently Creating a Furore in Davenport By Its Remarkable Cures of Disease.

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* This material with much additional appears in the new edition of the pamphlet Convictions price fifteen cents.

Correspondence

SHEET MICA AS A PROTECTIVE

To the Editor —Three years ago, at the meeting of the Pennsylvania Railroad Surgeons' Association, I read a paper on the employment of sheet mica (mineral isinglass) as a covering for wounds I should like to call attention to the valuable uses to which this substance may be put, in war as well as in railway surgery

Block mica can be readily split to any degree of thickness, from several millimeters, as sold in the hardware stores, down to a thinness equal to the the finest Cargile membrane Placed on the surface of a wound, its glassy texture renders it nonirritant and nonadherent, while at the same time the surface beneath can be viewed as under a glass Thus, granulation tissue, bone repair, brain, nerve, tendon, intestine or other organic structure can be daily inspected, and changes, retrograde or reparative, noted without disturbance or exposure to infection of the area The covering is readily lifted off or broken away if removal is required, or it may remain and become encysted in regions in which motion or friction is not great, there being no injurious irritation In a case in which I was obliged to remove a considerable portion of skull in secondary trephining after injury, I inserted an oval sheet of mica about 4 cm in longest diameter, which is still in place, three years after operation Like asbestos (mineral wool), also, it possesses the advantage of being readily and rapidly sterilized by being passed through a flame, being indestructible by heat When a large surface is to be protected by a mica covering, the mica should be laid on in small pieces, varying in size in accordance with the contour of the part to be covered and the amount of exudation or discharge beneath In the paper referred to above, I recommended that a small block of this mineral be carried in the railway emergency kit I should like to suggest that it might be found of equal efficiency in the soldier's first aid package, or at dressing stations

E O'Neill Kane, M D, Kane, Pa

"RAISING" THE QUANTITY OF NARCOTIC IN A PRESCRIPTION

To the Editor —This morning a man with a nice looking face came to the Coleraine Hospital He was using crutches, and had had one of his limbs removed, and also a portion of the pelvis, since he said that he was tuberculous In short, he was a drug addict, and urgently begged me to give him morphin and cocain—just 2 grains of each He hailed from Canada, and had only the day before secured enough from a physician at Hibbing to tide him over the day He was on his way to Duluth to "take the cure"

Realizing that the person was like most of that type, I refused to give him any great amount of the drugs, and therefore wrote him a prescription for morphin and cocain, of each, gr i Imagine my surprise to find at the local pharmacist's where I chanced in a few hours later, to see my prescription calling for gr iv each Very clever Merely a nicely added "v"

When I write my next prescription for a narcotic in behalf of a stranger, I think that I shall use our check protector

C R Morss, M D, Coleraine, Minn

MER URIAL POISONING

To the Editor —Apropos of your timely editorial on this subject (The Journal, June 30, 1917, p 1987), it may be of interest to note that the Hygienic Laboratory is endeavoring to secure authentic information with reference to poisoning cases reported in the public press From Jan 1 to June 30, 1917, 707 such cases have been reported on by physicians, and hospital and police officials, of these, 449 have been reported as suicidal, 174 accidental and 11 homicidal Of the 707 poisoning cases, 239 were due to mercuric chlorid, and of these 61 have, *thus far*, been reported as fatal

The purpose of this note is to call attention not only to the increasing number of such cases, but also to the urgent need of recognizing their possibly latent character and development Some of these cases were reported originally as recoveries Many of the patients are treated in emergency hospitals and, from the very nature of such service, are dismissed as soon as the acute symptoms are alleviated In many cases also, the victims, for obvious reasons, are eager to escape supervision, and frequently leave against the advice of the attendants That the possibility of a delayed, and often fatal, outcome is not yet fully appreciated is seen in the fact that many of these patients have been dismissed as recovered when they have been under observation for but two or three days

Murray Galt Motter, M D,
Library, Hygienic Laboratory, Washington, D C

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed Every letter must contain the writer's name and address, but these will be omitted, on request

THE HOOKWORM LARVA

To the Editor —A perusal of medical articles would lead one to believe that the larva of the hookworm is not to be found in a fresh stool The presence of larval forms associated with hookworm ova has been the case in the majority of the specimens I have examined There is some confusion in my mind in regard to what these larvae really are To sum up, my question relates to the relative frequency of *Strongyloides intestinalis* (larva) and hookworm (larva) in the warm specimen What other larva most closely resembles these two? Kindly omit name

W M W

Answer —The eggs and the larva of *Uncinaria* may be found in the stools In the making of a differential diagnosis the organisms to be considered are the *Ancylostoma duodenale,* the *Necator americanus,* or American hookworm, and the *Strongyloides stercoralis* The American hookworm is differentiated from the European type in that the head is strongly bent dorsad The eggs are more pointed at the poles than those of the *Ancylostoma duodenale,* and are larger The eggs of *Ancylostoma duodenale* are oval with broadly rounded poles In fresh feces they contain four granular nucleated segmentation masses of the ovum separated by a clear space from the shell The eggs of *Strongyloides stercoralis* never appear in the feces except during purgation They are usually strung out in chains Following is a table of differences between the larvae of *A duodenale* and *S stercoralis* See Fantham, Stevens and Theobald, "The Animal Parasites of Man," William Wood & Co, New York

DIFFERENCES BETWEEN LARVAE OF ANCYLOSTOMA DUODENALE AND *STRONGYLOIDES STERCORALIS*

	A Duodenale	S Stercoralis
1 Vestibulum oris	1 8 microns broad	3 microns*
2 Genital rudiment	3 to 5 microns long	25 to 33 microns*
3 Thickness	Thicker	
4 Esophagus	One fourth body length	Half body length†
5 Tail	Pointed	Two fine points†
6 Motion	Less active than	
7 Intestine	Soon fills with dark granules	

* Rhabditiform
† Filariform

BLIND MASSEURS INFORMATION WANTED

To the Editor —I am interested in the blind of this country I am investigating massage with a view to finding whether it would be a practical vocation for blind people

Can you give me the addresses of any schools where massage is being taught as a science? Do you know of any magazines published for masseurs? Do you know of any correspondence courses being issued on the subject?

P T Richards M D, Ferris, Ill

Medical Education and State Boards of Registration

Medical Colleges of China

The following list of medical schools of China was furnished by Dr Edward H Hume chairman of the Council on Medical Education of the China Medical Missionary Association These institutions were personally inspected by Dr Hume during January 1917 The list, therefore, is complete and the information furnished us reliable. The list follows

City	Province	College
Canton	Kwangtung	—Chung fa Medical College
Canton	Kwangtung	—Hackett Medical College (women)
Canton	Kwangtung	—Kung Yee Medical College
Canton	Kwangtung	—Kwangtung Provincial Medical College
Canton	Kwangtung	—Kwang Wa Medical College
Canton	Kwangtung	—Liang Yueh Medical College
Changsha	Hunan	—Hunan Yale College of Medicine*
Chengtu	Szechuan	—West China Christian University School of Medicine
Foochow	Fukien	—Union Medical College
Hangchow	Chekiang	—Chekiang Provincial Medical College
Hangchow	Chekiang	—Hangchow Medical Training College
Hangchow	Chekiang	—Hangchow Medical College
Hankow	Hupeh	—Union Medical College
Hongkong	Hongkong	—Hongkong University School of Medicine
Mukden	Manchuria	—Mukden Medical College
Mukden	Manchuria	—South Manchuria Medical College
Peking	Chihli	—Board of Education Medical College
Peking	Chihli	—Union Medical College*
Peking	Chihli	—Union Medical College for Women
Shanghai	Kiangsu	—German School of Medicine
Shanghai	Kiangsu	—Pennsylvania St John's Medical School*
Shanghai	Kiangsu	—Elizabeth Blake Medical Training College.
Soochow	Kiangsu	—Kiangsu Provincial Medical College
Soochow	Kiangsu	—Woman's Medical College
Tientsin	Chihli	—Army Medical College
Tientsin	Chihli	—Navy Medical College
Tsinanfu	Shantung	—Shantung Christian University School of Medicine.*

The five colleges indicated by an asterisk (*) are eligible to membership in the Association of Medical Colleges of China Membership in that association is limited to such colleges as provide a four-year medical course preceded by adequate college courses with laboratory work in physics, chemistry and biology based on high school graduation

The Union Medical College at Peking was reorganized in 1916 by the China Medical Board of the Rockefeller Foundation It was incorporated under a provisional charter granted by the regents of the University of the State of New York Dr Franklin C McLean formerly professor of pharmacology of the University of Oregon and lately a member of the staff of the Rockefeller Institute Hospital in New York has been appointed head of the new institution and as professor of medicine New buildings are to be constructed and in order to permit the reorganization to go forward without confusion, the three lower classes of students have been transferred to the Shantung Christian University at Tsinanfu The two upper classes will be carried through the remainder of their course by the present faculty The foreign staff now consists of six doctors giving full time and six part time besides one pharmacist and four nurses No permanent assignments have been made to the faculty of the reorganized school with the exception of Dr McLean as professor of medicine, but it is the desire of the trustees that men already on the field should be utilized so far as possible, owing to their interest in the work and their knowledge of the language and local conditions With this need in view, a number of doctors in China have been given assistance, to enable them to go abroad for special study

At Shanghai the China Medical Board is planning to establish a second high-grade medical school, but has taken no steps aside from continuing the clinical teaching in the Red Cross Hospital where the Harvard Medical School of China formerly conducted clinics The latter institution has been discontinued to make way for the new school The China Medical Board has sent seven of the most promising of the Harvard students to the United States to complete their studies looking toward the development of the teaching staff Pending the organization of the new school, the China Medical Board is supporting a full-time teacher at the Pennsylvania-St. John's Medical School in Shanghai, and has appropriated $25,000 a year for the maintenance of the Red Cross General Hospital

The Pennsylvania-St John's Medical School is conducted under the auspices of the American Episcopal Church, with funds contributed partly by the Christian Association of the University of Pennsylvania The teaching is in English, and there are ten foreign physicians on the staff This school will probably merge with the new medical school being organized by the China Medical Board, or will be discontinued in the interests of the new school The medical school of Boone University at Wu Chang, Hupeh Province, was recently merged with the St John's University

At Changsha is located the Hunan-Yale College of Medicine which is conducted jointly under Chinese and American management It has several foreign physicians, and the teaching is in English It has received an annual grant of $16 200 for maintenance from the China Medical Board, which also recently made another appropriation of $30,000 for building and equipping a new laboratory

The University of Nanking a year or so ago, united with St John's University and the Harvard Medical School in inviting the China Medical Board to establish a new school at Shanghai and, in order to aid in the development of the new department, determined to discontinue its own medical school The university hospital however, is being continued and the China Medical Board has provided a generous sum annually for salaries and other expenses It has also pledged $25 000 for buildings and equipment, on condition that the university should raise an equal amount during 1917

The Shantung Christian University School of Medicine at Tsinanfu has also been given financial aid by the China Medical Board, part of which was to provide the additional buildings and the cost of teaching the three classes transferred from the Peking Union Medical College The board granted $100 000 for maintenance expenses, to be spread over five years, and $50 000 gold for buildings and equipment The board however, assumes no authority either to supervise the expenditure of money or to manage the institution This school now has an enrolment of 110 students including sixty who came from the medical school at Peking The teaching is in the Chinese language The staff has been strengthened so that this school is now one of the strongest in China

The Mukden Medical College, like the medical school at Tsinanfu is a union missionary institution Teaching is in Chinese, and there are 106 students

The German School of Medicine at Shanghai was closed in March, 1917 after diplomatic relations between Germany and China had been severed

Physicians Registered in Arkansas in 1916

A request has been received from the State Medical Board of the Arkansas Medical Society asking for an explanation of the reference to Arkansas in Table 5, published in The Journal, June 9, 1917, p 1761 That table shows that during 1916, 95 physicians were licensed in Arkansas, of whom 61 came from medical colleges of known classification Of the 61 15 were from Class A colleges, 22 from Class B colleges and 24 from Class C colleges There were 34 other physicians registered, 6 from unclassified colleges and 28 who were licensed through reciprocity

There are three separate and independent licensing boards in Arkansas briefly referred to as the Regular, Homeopathic and Eclectic boards The registrations by these boards of physicians from colleges of known classification were as follows

Boards	Class			Totals
	A	B	C	
Regular	15	21	—	36
Homeopathic	—	1	7	8
Eclectic	—	—	17	17
Totals	15	22	24	61

Social Medicine, Medical Economics and Miscellany

What Is Orthopedic Surgery?

The *British Medical Journal*, June 9, comments favorably on the American Unit of Orthopedic Surgeons, and discusses what is meant by orthopedic surgery

"The word 'orthopaedic' is an adaptation from the French *orthopédie*, the earliest authority Murray gives for this word is 1747, and for the English words 'orthopaedy' (ὀρθὸς straight, παιδία, rearing of children) and orthopaedic, 1840 No doubt the primary meaning was the correction of deformities in children, but Murray notes that it has been extended to mean the correction of bodily deformities in general That this took place at an early date is rather strikingly shown in Le Gros Clark's translation of Dupuytren's lectures on 'Injuries and Diseases of Bones' (London Sydenham Society, 1847) In speaking of what the surgeon should do when in consequence of fracture the ends of the bone assume an altered and defective relation to each other, he asks whether the surgeon should leave this evil tendency to work its own mischief, involving as it does a disagreeable deformity and curtailing the use of the limb, or whether he ought not to make some effort to remedy the defect by reestablishing the normal direction of the limb And he answers that 'there exists considerable analogy between the deformities resulting from fracture and those which are attributable to other causes It is well known how much benefit is derived from orthopaedic means in this latter class of affections, and if vicious curvatures of many years' standing may be corrected without inconvenience, how much rather may we anticipate the same desirable results, by the employment of analogous means, where the deformity does not date longer than a few weeks back, and is only maintained by a newly formed structure, which does not attain to the same consistence with bone until after the lapse of a very long time' If we add to this the lesions of joints, which no doubt Dupuytren had in mind, although his subject did not lead him specifically to mention them, it is seen how large a field there is for the application of orthopaedic principles in military surgery"

The *British Medical Journal* asked the director of the unit, Dr J E Goldthwait of Boston, Major M R C, U S Army, for his definition

"Orthopaedics with us," said Major Goldthwait, " has to do with 'the diseases or lesions of the bones, joints, and muscles, and deformities' At one time it was expected to devote itself to the deformities, but now it is recognized that the treatment of the disease or special lesion that is causing the deformity is the most essential feature For that reason the treatment of a rheumatic or rheumatoid condition is as essential as the treatment of the joint manifestation The same is true of the deformities due to nerve injuries Military orthopaedics is not different from civil orthopaedics, except in the greater prevalence of trauma as the cause of the lesion"

On this the *British Medical Journal* comments

"Those who turn back to the remarkable article on military orthopaedic hospitals contributed to this journal by Dr Colin Mackenzie on May 26 last will see how nearly Major Goldthwait has packed Dr Mackenzie's doctrine into a definition"

Spray Method of Finishing and Decorating as an Occupational Hazard

New methods in industry are frequently accompanied by new dangers to the workers The spray or compressed air method of applying varnishes, enamels, shellacs, lacquers and practically every kind of finishing and decorating material brings with it increased danger of poisoning by various hydrocarbons used for quick drying and even spreading, as well as by lead and other poisonous substances in such material This method is now largely used as it produces a better quality of work, allows greater speed, and is efficient and economical Unless conditions are right and proper care is used, the sprayer or nebulizer produces a cloud of poisonous fumes which envelop the operator, often causing poisoning

Dr R P Albaugh, acting director of the division of industrial hygiene, Ohio State Department of Health (*Public Health Reports,* March, 1917), reports a fatal case in a boy of 18 who was a sprayer in a filler and varnish room The cause of death assigned was "myocardial degeneration, probably caused by naphtha and turpentine poisoning" Six days before his death the patient had consulted a physician complaining of great weakness, periods of nausea, loss of appetite, tingling of the extremities, constipation, and hemorrhagic spots over the body The systolic blood pressure was 85, temperature 97 2 and pulse 69 Two days later the patient was in bed, with the systolic blood pressure 75, temperature below 94, the pulse 90, and weak and irregular The urine was cloudy, specific gravity 1 022, it was acid, and contained a trace of albumin, many hyaline and a few granular casts, and a few cylindroids The blood count revealed 3,500,000 red cells, 12,400 leukocytes, 78 6 per cent polymorphonuclears, 16 4 per cent small mononuclears, 3 per cent large mononuclears and 2 per cent eosinophils

Three other young men who were employed in the same department complained of symptoms similar to those of the patient, though in a milder degree Investigation by Albaugh showed that the patient had been working in the department as a sprayer for eight months, and although the article on which he worked was covered by a large hood with a good exhaust, the spray when directed against a flat surface would envelop the operator unless he was careful of his position It was observed that the workers paid little attention to being enveloped in the spray, no respirators were worn, nor was any adequate instruction given or enforced regarding exposure to the spray Albaugh notes a number of faulty arrangements frequently found surrounding the employees of factories in this dangerous work

Origin of Man

"The questions of the antiquity and origin of man," says Hrdlicka, "are naturally subjects of the greatest interest both to the scientist and to the layman, for they not only involve what is probably the most important problem in science, but touch the very foundations of human beliefs, ethics, and intellectual as well as organic progress in the future Their detailed solution, also, is still far from us But it may now be safely postulated that man did not appear on our planet as an entirely new and distinct being unconnected with the rest of terrestrial organic life He is anatomically as well as physiologically but a highly specialized mammal that still carried numerous though now more or less useless vestiges or "reminiscences" of various lower stages through which he passed Nor is there any good reason to regard him as the result of some freak of evolution, for his progress in the organic scale appears thoroughly logical His ascent, judging from what has been already learned on the subject, though probably not uniformly accelerated, was on the whole slow We shall seemingly come nearest the truth if we look on him as on the ultimate result or gradual modification in the upward continuity of trend of a highly specialized group of organic forms He may be regarded as the topmost and dominating bough on an ancient mammalian tree whose roots intertwine, somewhere in the earlier Tertiary, with those of various advanced vertebrates From this tree branches have doubtless diverged at different levels and become related species, some of these still persisting, while others have been long extinct The stem began, so far as discernible, with lemurlike forms, from which in the course of time sprang, though scarcely in the order in which they now appear to us, the more simple and then the more highly organized primates Among the latter then arose, it would appear, slowly or more likely rather suddenly, one or perhaps several forms characterized by more than the average physical instability, and the descendants of one or more of these strains, under the influence of changing environment, more especially food and climate, and perhaps other agencies, began to develop reduced teeth, larger brain, more erect posture, increased facility of intercommunication, and this differentiation apparently progressed until some strain of these changing beings reached that hazy dividing line below which was still the realm of the apes but above which commenced that of the true *precursors* of man"

Medicolegal

Validity of Statute Relative to Drugless Practitioners

(Crane vs Johnston (U S) 7 Sup Ct R 176)

The Supreme Court of the United States affirms an order denying an injunction to restrain the enforcement of the California statute of 1913 amended in 1915 empowering a board of medical examiners to prescribe a course of study and examination for those who would practice medicine, including drugless practitioners but which statute it is provided therein shall not be construed so as to regulate prohibit or to apply to any kind of treatment by prayer or to interfere in any way with the practice of religion The court says that it was alleged that the statute violates the fourteenth amendment of the Constitution of the United States, especially the equal protection clause thereof in that it imposes greater burdens on the complainant than on others in the same calling and position, the complainant s particular grievance being set forth to be that the statute discriminates between forms of healing the sick and the use of prayer and other drugless methods In other words he attacked the classification of the statute as having no relation to the purpose of the legislation Of course, he was confined to the special discrimination against him, he could not get assistance from the discrimination if any existed against other drugless practitioners The case, therefore, was brought to the short point of the distinction made between his practice and certain forms of practice or more specifically between his practice of drugless healing and the use of prayer The only question was whether it was competent for the state to recognize a distinction in its legislation between drugless healing as practiced by the complainant and such healing by prayer That there was a distinction between his practice and that of prayer the complainant himself, it seems to the court, had charged He had charged not only that he did not employ either medicine drugs or surgery in his practice, but that he did employ faith hope and the processes of mental suggestion and mental adaptation These processes he did not describe Presumably they were different from healing by prayer—different from treatment by Christian Science. But he alleged that for his practice he had become particularly fitted by many years of study and practice therein' In other words the treatment was one in which skill was to be exercised and the skill could be enhanced by practice and the objects of the treatment were diseased human beings whose condition was to be diagnosed To treat a disease there must be an appreciation of it, a distinction between it and other diseases, and special knowledge is therefore required And this was the determination of the state, but it determined otherwise as to prayer, the use of which, it decided, was a practice of religion This court cannot say that the state s estimate of the practices and of their differences was arbitrary, and therefore beyond the power of government And this it would have to say to sustain the contentions of the complainant, and say besides, possibly against the judgment of the state, that there was not greater opportunity for deception in the complainant s practice than in other forms of drugless healing

City Not Liable for Injury from Materials Negligently Left at Hospital

(Frost vs City of Topeka (Kan) 161 Pac R 936)

The Supreme Court of Kansas affirms a judgment in favor of the city, holding it not liable in damages for the plaintiff's injury in this case where it says that the petition disclosed that the plaintiff's parents became afflicted with smallpox and were confined in the detention hospital of the city The plaintiff, a child of 9 years, was taken to the hospital with his parents and was allowed to play about the hospital grounds He found a sack of dynamite caps which employees of the city had taken to the hospital grounds and had neglected to remove or render inaccessible. The plaintiff carried the caps into the hospital accidently exploded one of them, and injured his hand so that some of his fingers had to be amputated Now the court considers that while the hospital, with its equipment and grounds was property of the city, it was property held and maintained in a public and governmental capacity, and not in a private proprietary capacity The sole object in establishing and maintaining the hospital was to conserve the public health, a purely governmental function exercised under the police power of the state The enterprise was public and governmental from its inception, and in doing the work of constructing the building and installing the water and sewerage systems the city acted as a mere agency of the state in promoting the general welfare While the dynamite caps were property of the city, they were mere contributions to the enterprise the same as building material water pipe, sewer pipe, and other articles necessary to secure the ultimate end in view If in performing the work of constructing and equipping the hospital and putting the grounds in condition for occupancy, materials of any kind were used or disposed of in a negligent or unsafe way, the capacity in which the city acted shielded it from pecuniary liability When construction was completed and maintenance of the institution of a detention hospital was begun the relation of the city to the project remained the same, and if for any reason the premises were not safe for occupancy by persons detained in the hospital, the same exemption from liability existed It makes no difference in principle whether the building or the grounds appurtenant to the building be defective and it makes no difference whether the dangerous agency act by penetration or by concussion The employees of the city who caused the hospital grounds to be unsafe by negligently failing to remove the portion of the supply of dynamite caps not consumed in blasting might be personally responsible for the consequences of their conduct, but the city was not

Notice Must Be Given to Maintain an Action for Malpractice

(Klingbeil vs Saucerman (Wis), 160 N W R 1051)

The Supreme Court of Wisconsin affirms an order overruling a demurrer to the defendant's answer in this action for malpractice based on an alleged breach of an implied contract on the part of a physician to exercise proper skill and care in treating the plaintiff's broken leg The answer pleaded in bar the failure of the plaintiff to give the notice provided for by Subdivision 5 of Section 4222 of the Wisconsin statutes of 1913 The court says that this appeal raised the question whether the notice provided for by said Subdivision 5 must be given in order to maintain an action for malpractice based on a breach of the implied contract on the part of the physician to exercise proper skill and care in the treatment of the plaintiff That part of the section in question reads as follows

> No action to recover damages for an injury to the person shall be maintained unless within two years after the happening of the event causing such damages notice in writing signed by the party damaged his agent or attorney, shall be served on the person or corporation by whom it is claimed such damage was caused stating the time and place where such damage occurred, a brief description of the injuries the manner in which they were received and the grounds upon which claim is made and that satisfaction thereof is claimed of such person or corporation

In *Frechette v Ravn* (145 Wis 589, 130 N W R 453) this court held that in an action for malpractice based on tort, the notice must be given, but expressly reserved the question here presented It is to be noticed that the clause in question though in the nature of a statute of limitations, differs therefrom in that it requires a preliminary notice to be served within a specified time, instead of fixing the time within which an action shall be begun, also that the notice must be served in every action for injuries to the person, irrespective of the form of such action It was stated in *Frechette v Ravn* that an action in tort for malpractice was "plainly one to recover damages for injuries to the person" Why? Because the defendant's conduct resulted in an injury to the person of the plaintiff If it did so because of the tort, which consisted of a breach of duty created by law, it is difficult to see why it does not do so when the same identical conduct produces the same identical result, though the camplaint charges the breach of a duty created by contract between the parties instead of the breach of a duty created by law Damages may flow from the breach of both duties, and likewise an injury to the person may result from the breach of a contract as well as from a tort. Where, as in malpractice, there is an option to sue in tort or on contract, each cause of action is grounded on the same identical acts of the defendant, namely, his failure to exercise the proper skill or care, or both The very same conduct gives the plaintiff his option as to remedies Hence, if the defendant's conduct when sued is tort gives rise to an action for injuries to the person, the very same conduct must give rise to the same kind of action when sued on contract The word "action" as used in the statute has reference to the subject-matter or nature thereof, not to its form as a matter of remedial procedure Whether it be in tort or on contract, it is an action to recover damages for injuries to the person, and comes alike under the terms of the statute, since the phrase therein, "no action to recover damages for injuries to the person," refers to bodily injuries, and not to injuries to feelings

Society Proceedings

COMING MEETINGS

Western Roentgen Society, Kansas City, Mo, July 20 21

AMERICAN GYNECOLOGICAL SOCIETY

Forty Second Annual Meeting, held at Pittsburgh, May 31 and June 1, 1917

The president, Dr Frank Farrow Simpson, Pittsburgh, in the Chair

Value of the Avoidance of Shock and Trauma in the Treatment of Eclampsia

Dr Edwin B Cragin, New York In the first series of 20,000 deliveries at the Sloane Hospital, New York, with 251 cases of eclampsia, the maternal mortality was seventy-one, or 28.28 per cent The fetal mortality was 151, or 16 15 per cent. In the last series of 15,774 deliveries, with 138 cases of eclampsia, the maternal mortality was twenty, or 14 49 per cent The fetal mortality, including stillbirths and those dying before the mother left the hospital, was sixty-two, or 44 92 per cent The reduction in mortality has been brought about by avoiding shock and trauma, by avoiding chloroform, by preparing the cervix before delivery, by avoiding accouchement force, and by treating the toxemia while preparing the cervix

DISCUSSION

Dr. J Whitridge Williams, Baltimore I agree with Dr Cragin about sparing the patient every possible amount of shock during the time of delivery Unlike Dr Cragin, in the last few years I have resorted to bleeding which has had a very good effect in a considerable number of cases of eclampsia, consequently it is almost a routine in my service now to bleed every woman with antepartum eclampsia, and when we do bleed we take away from 750 to 800 c c In a certain proportion of cases that ends the misery The woman has no more convulsions, the albuminuria falls, the nitrogenous constituents of the urine rise just as though she had not been bled, and such women occasionally go on for some weeks or even months and have a baby at term without further eclampsia

Dr Reuben Peterson, Ann Arbor, Mich I long ago gave up the use of chloroform in the treatment of eclamptic women My investigations of both abdominal cesarean section and vaginal cesarean section have shown conclusively that if a woman can be taken early in her eclampsia, both operations are remarkably successful in saving both the mother and the child I have seen good results from bleeding, but have not obtained satisfactory results from the use of veratrum viride

Dr Brooke M Anspach, Philadelphia In how many cases of eclampsia do Drs Cragin and Williams find acetone and diacetic acid in the urine, and how do they meet the condition of acidosis? During the last year I had a woman to treat who developed serious symptoms of toxemia more than two weeks after delivery She had three severe convulsions in one day She showed remarkable improvement after the intravenous injection of a pint of a 2 per cent solution of sodium bicarbonate, and she had another injection the next day and recovered

Dr Edward P Davis, Philadelphia I would not deliver a woman in eclampsia and toxemia unless she showed signs of going into labor, then I would assist her with the least possible traumatism My objection to the bag is the fact that its long continued pressure sometimes exhausts these patients and leads to the development of convulsions Abdominal cesarean section is rarely indicated, and vaginal cesarean section still more rarely indicated I have come to have a high regard for venesection in eclampsia, if it is followed by the use of salt solution or sodium bicarbonate in the vein

Dr Harold C. Bailey, New York Eclamptics are particularly prone to develop shock Accouchement force has been discontinued in the Bellevue Hospital Service In 1900, when we took systolic blood readings, several eclamptics were delivered by that method and in several instances we found there was a drop of 100 mm of mercury We then made blood pressure readings following the use of veratrum viride, and in one instance in which the drug was pushed we found a drop of 140 mm of mercury with the woman in profound shock Since that time we have not used veratrum viride previous to delivery As regards vaginal and abdominal cesarean section, my views are in accord with those of Dr Cragin

Dr E Gustav Zinke, Cincinnati The principal cure for puerperal convulsions lies in prophylaxis during the pregnant state Some of these cases will terminate fatally in spite of what we do

Dr E B Cragin, New York In regard to diacetic acid and acetone in these cases of eclampsia, we recognize all types of cases, one in which the liver is most involved, the other in which the kidney is more involved, and in a case in which the liver is the organ more involved, we are more apt to get acetone and diacetic acid, and there soda has proved valuable

SYMPOSIUM ON RADIUM THERAPY

Methods and Results of Radium Treatment of Uterine Hemorrhage Due to Other Causes than Malignancy

Dr Howard A Kelly, Baltimore Radium therapy here is as simple and as safe as a dilatation of the cervix, and consists in nothing more than introducing a uterine sound with a hollow tip containing 500 millecuries of emanation and applying it successively to eight different points in the uterus, fifteen minutes at each point This practically always cuts short the menstrual function, and so simply obviates the need for a hysterectomy In young women, menstruation can sometimes be modified without even suspending it In one case pregnancy and delivery of a healthy child followed the treatment Seven of 100 patients had heart disease, two epilepsy, two insanity, and others Bright's disease and tuberculosis, manifestly bad risks for hysterectomy No serious sequelae follow the radium treatment Practically in all cases of fibroid tumors, radium has checked the monthly flow completely when desired In young women it has been possible in some instances to cause the tumor to disappear without stopping menstruation permanently

Radium in the Treatment of Uterine Hemorrhage and Fibroid Tumors

Dr C Jeff Miller, New Orleans In the treatment of uterine bleeding from various causes, radium is almost a specific Its most striking effect is its certain control of uterine bleeding due to the metropathies, or aberrant ovarian function Aggravated cases of the menopause, usually relieved by hysterectomy can be controlled by a single application of radium Similar results are obtained in bleeding complicating fibroids of the uterus and certain types of fibroids may disappear or markedly shrink Radium will not supersede surgery in the treatment of fibroids Large growths giving rise to pressure symptoms or presenting evidences of degeneration, as well as submucous tumors, should be treated surgically if operation is not contraindicated When desirable to preserve the function of the generative organs in young women surgery should be considered the more conservative procedure, since it permits myomectomy Its effect in controlling bleeding associated with chronic metritis and polypoid endometritis is equally satisfactory, and when the dosage and screening are carefully measured it may be used as a last resort in excessive bleeding in young girls, without causing cessation of the menses Itching associated with kraurosis of the vulva, as well as pruritus, can often be allayed by radium

Radium Therapy in Uterine Hemorrhage of Benign Origin

Dr. John G Clark, Philadelphia In cases of hemorrhage of the uterus of benign origin such as that from small myomas or myopathic change particularly in women over 38 years of age, radium in small doses is one of the most effective remedies relieving practically all of the patients from even the slight hazard of a major surgical operation The hemorrhages in such cases stop promptly and with rare exceptions permanently without untoward effects incident to the use of radium Those near the menopause respond best Cases in former years in which even repeated curettages failed to alleviate the hemorrhage are promptly terminated after the application of 50 mg of radium for twenty four hours In over 100 cases there has been but one failure to relieve the hemorrhagic symptoms

Radium in Uterine Cancer

Dr. Harold C. Bailey New York The platinum applicators holding large amounts of radium emanation are placed in an iron capsule containing mercury This mercury 'bomb' offers efficient protection to the normal tissues and permits of the entire lower part of the pelvis being swept with a sufficient dose in a period of usually not more than four or five hours In addition heavy applications are made over the lower part of the abdomen in three areas and directed toward the upper part of the pelvis In this manner, from the standpoint of the amount of radiation three or four times the dose possible with the ordinary technic can be directed into the pelvis without subsequent irritation

DISCUSSION

Dr. Francis Carter Wood, New York I have had little personal experience with the use of radium in the treatment of uterine hemorrhage. Those cases I have seen have suggested the necessity of an accurate preliminary diagnosis of the condition of the endometrium by the thorough microscopic study of curettings removed with care so as to obtain as large fragments as possible and promptly preserved Without such precautions in obtaining the material, a satisfactory study is often impossible. I have seen a few cases treated in which the radium did not cause a cessation of the hemorrhage until such doses had been administered as to cause atrophy of the ovaries As to the treatment of fibroids, I feel from my pathologic experience that only a moderate percentage can be properly handled by radiation. It must be remembered that after extensive radiation, hysterectomy, should it prove necessary, may be very difficult, owing to the cartilaginous fibrosis of the parametrium

Dr. Herman J Boldt, New York While radium has certain advantages in the treatment of hemorrhages from benign causes, I have failed to hear the final results from its use Similar results may be obtained from the proper intra-uterine application of zinc chlorid The advantage of radium is that fewer applications may be necessary One may obtain a result after one or two treatments which may require a dozen treatments by zinc chlorid Radium may cause less pain than zinc chlorid, but the proper application of a 50 per cent. solution of zinc chlorid in the form of an intra-uterine tampoiade will bring about a result equally as good as that by radium so far as the cessation of hemorrhage is concerned

Dr Ernest C Samuel, New Orleans When the hemoglobin is low, I have found that a smaller dosage of radium spread over a longer period of time produces less toxic symptoms than a large dose given for a shorter length of time Almost 90 per cent of patients for whom I make intra-uterine applications or applications around the cervix develop a distressing nausea and vomiting and some elevation of temperature.

Dr Henry Schmitz, Chicago I believe the radiotherapist who uses small amounts of radium obtains as good results as the man who uses larger amounts In benign conditions we use fewer milligrams of radium, and the physical condition of the patients is much better than in malignant conditions The malignant cases frequently show advanced cachexia and anemia The resistance of these patients is materially lowered and in such cases it is necessary to use larger amounts of radium rays than in nonmalignant conditions

Dr William P Graves Boston One thing I have noted which has not been mentioned that the successful reaction of the cancer cells to radium depends considerably on the histologic structure of the cancer Cancers that are purely squamous in type starting from the portio vaginalis, are much more favorable to treatment Those are the cases in which I find the disease disappears like magic But those cancers which originate in the endocervix that is, adenocarcinoma of the cervix do not respond in the same way

Vulvar Carcinoma

Dr Frederick J Taussig St Louis Eight of our fifteen patients received deep Roentgen-ray treatment four of them with the Coolidge tube but in none was there more than a temporary improvement We have come to the opinion that the Roentgen ray can be considered only as an auxiliary to surgical measures in vulvar cancer We had no radium to use but it is difficult to see how its results would have been any better in view of the early and extensive involvement of the lymphatic system in these patients There remained, therefore, only radical surgical removal as a therapeutic agent

(To be continued)

AMERICAN PEDIATRIC SOCIETY

Twenty Ninth Annual Meeting held at White Sulphur Springs W Va
May 28 30 1917

The President, Dr. Frank Spooner Churchill, Chicago,
in the Chair

Primary Carcinoma of the Liver in Childhood

Dr J P Crozer Griffith, Philadelphia This case occurred in a girl aged 21 months, whose family history was negative Below the costal margin, midway between the midsternal and the right mammillary line, was a visible, hard, smooth mass apparently with a rather firm edge It appeared to be connected with the liver At operation a tumor mass was found in the right lobe of the liver, extending through the entire thickness of the lobe. As the case appeared to be inoperable, the wound was closed The tumor consisted entirely of epithelial cells without a trace of liver tissue The growth continued to increase in size, until death supervened, nine months after the patient came under observation.

Intravenous Injections in Infancy

Dr. Charles Hunter Dunn, Boston At the Infants' Hospital we use the longitudinal sinus for the purpose of obtaining blood for the Wassermann test and to give intravenous injections of physiologic sodium chlorid solution, sodium bicarbonate, antitoxin, circulatory stimulant drugs and solutions of glucose The cases in which the intravenous injection of glucose was used were approximately all cases of extreme atrophy and inanition produced by various forms of gastro-intestinal disease The theoretical basis for the use of intravenous glucose injections in such cases is that apparently the vicious circle produced by gastro-intestinal disorder has become so extreme that the digestion and absorption of sufficient fluid to furnish the energy requirement of the body is impossible Glucose is the only food substance which exists outside of the body in the same form in which it circulates in the blood and is utilized by the tissues If introduced directly into the blood it may, through a temporary supply of even a small quantity of fuel, break the vicious circle for a sufficient length of time to permit improvement of the condition to take place In determining the quantity of glucose we rather arbitrarily adopted a 5 per cent solution In choosing the quantity of glucose for an individual baby, one sixtieth of the body weight was taken In eighteen cases the records are sufficiently complete for the purposes of this report Of these eighteen patients, thirteen died and five recovered After the injections, seven showed no improvement, five showed a temporary slight improvement, and six showed a striking immediate improvement There was no evidence that the improvement was due to the glucose, it was quite possible that the apparent improvement was due to giving the fluid into the circulation However, there was sufficient evidence of the glucose being of value to warrant its further trial In five cases, more than one injection was given, and in one case, six daily injections of 3 gm each, in this instance the patient was apparently kept alive by the glucose, and eventually recovered

DISCUSSION

Dr Henry F Helmholz, Evanston, Ill We have been doing the same kind of work Dr Woodyatt has devised a pump by which sugar solution may be introduced at a uniform rate, and this rate can be varied at will With the injection of 0 8 gm per kilogram of body weight, no sugar was excreted in the urine We have not tried giving the glucose to the class of patients in which Dr Dunn has used it, so I cannot say whether or not there is a lessened sugar tolerance in such cases In the concentration in which we have used the solution, I do not think there is any danger of overloading the circulation and placing too much strain on the heart

Dr Godfrey R Pisek, New York We have been using a syringe with a double valve, so constructed that we can withdraw the fluid in the usual way and then make the injection by the gravity method This provides an additional element of safety by eliminating the possibility of introducing the fluid too rapidly

Dr Howard C Carpenter, Philadelphia A word of warning should be sounded against the introduction of too powerful drugs I know of one case in which salvarsan was administered by properly carried out technic, and the child died eleven days later At necropsy an abscess was found on the frontal lobe of the brain

Dr Alfred F Hess, New York In a case of hemorrhagic disease in an infant, the longitudinal sinus was used for aspiration The child died, and necropsy revealed that the blood had gone down along the side of the brain, between the skull and the brain I feel some hesitancy in entering the sinus in hemorrhagic cases

Dr Julius P Sedgwick, Minneapolis We have been using the longitudinal sinus for making injections, and in a few instances of hemorrhagic disease I believe it was a lifesaving procedure

Dr Henry F Helmholz, Evanston, Ill Within the last three months I have seen three cases which resulted fatally after injection, even though the injection was carefully given At necropsy the entire cortex, as well as the base of the brain, was covered with blood, suggesting the possibility that a pathologic process was to blame

Dr Charles Hunter Dunn, Boston Probably it would be safe to give a stronger solution of glucose than we used, but in the beginning of work of this kind it is necessary to proceed very cautiously I think that, perhaps, in giving injections by the longitudinal sinus we may make an exception of salvarsan We gave it a number of times, and everything went well Then we gave it in two cases, and the patients died Nothing could be found at necropsy that could be attributed to the administration of the salvarsan, but since this happened we have stopped giving salvarsan in this way We made observations in a severe case of acidosis in which intravenous injections of sodium bicarbonate had been given, and in spite of this treatment the patient was going down hill rapidly After a large injection of glucose, this child improved and went on to recovery

Therapeutic Use of Blood Serum in Marasmus

Dr. Rowland G Freeman, New York The histories in our cases of marasmus seem to show that when the injections were stopped, the improvement was not so rapid and there would be a loss in weight, but as soon as the injections of horse serum were resumed, the child again began to gain in weight. After giving two injections of horse serum it is advisable to test the child for sensitization before giving a third injection In one child in this series, the second injection was followed by the development of an urticarial rash This child was considered sensitized, and no further horse serum was given It seems useless to give less than 20 c c of serum Under proper control this is a safe procedure, and in almost hopeless cases apparently produces marked improvement It has a much greater sphere of usefulness than has hitherto been appreciated

DISCUSSION

Dr. Charles Herrman, New York Last year, during an epidemic of this type of disease, we had two cases that were extremely severe Being unable to obtain human serum, we used horse serum with very good results Both these children would probably have died The questions are whether it is necessary to use serum, and whether whole blood would not be as good as the serum

Dr Fritz B Talbot, Boston It would be of interest to know what Dr Freeman has done for the future of these babies, to what degree he has sensitized them to horse serum I have not been as much impressed by these results as I would like to be, I have seen a number of babies show similar improvement without treatment of this kind

Dr L. Emmett Holt, New York I agree with Dr Talbot that one sometimes sees similar results in cases not treated in this way In one of the cases, however, the results seem very striking

Dr Rowland G Freeman, New York Horse serum is not only more easily available than human serum, but one can obtain it in any quantity desired One of these babies was given so many injections that had we been dependent on human serum we would have been compelled to stop the treatment As to the possibility of sensitizing these babies to horse serum, it must be remembered that they were practically moribund, and the possibility of sensitization was of secondary importance I do not think it makes any difference whether we use human serum, horse serum, or whole blood

Twenty-Four Hour Metabolism of Two Normal Infants, with Special Reference to the Total Energy Requirements of the Infants

Dr. Fritz B Talbot, Boston The purpose of this investigation was to determine how much energy was expended in the ordinary muscular activity of an infant during a twenty-four hour day One of these infants was in the respiratory chamber twenty-two hours and thirty-one minutes, and the other twenty-three hours and ten minutes Accurate records were kept of the time during which the infants were nursed, the time they cooed, kicked, played, smiled, were changed and cried In the observations on the first baby it was found that the "basal" metabolism of 285 calories was increased 143 calories (67 per cent) by muscular activity In the second baby the basal metabolism was increased 70 per cent The metabolism of the babies could not be measured during the periods when it was necessary to remove them from the chamber, but an estimate of what it would have been was made by taking the average maximum total metabolism and dividing it by twenty-four hours This was added to the measured metabolism, and gave the total calories produced in twenty-four hours The energy lost from the body through the urine and feces was also calculated, and had to be supplied in the food The greatest single factor to be taken into consideration was the fat lost in the feces which with the urea in the urine should not exceed 15 per cent. of the total measured metabolism in a normal infant By adding the calories used up in muscular activity to the basal metabolism, a rough estimate of the caloric requirements of the normal infant might be made From these observations it is probable that infants fed on cow s milk and particularly on formulas containing large amounts of protein will require even more food than infants fed on human milk because the stimulating action of the protein causes extra heat to be burned during digestion These calculations do not apply to sick infants or those with subnormal temperature

DISCUSSION

Dr Thomas S Southworth New York Have you made any calculations as to how much energy is used up when certain portions of a baby s body are exposed to changes in temperature? I recently saw a child which was being dressed without shoes and stockings and I advised the parents to cover the feet and legs of the baby so that it should not waste energy through a loss of heat that should go into growth It has been suggested that additional nourishment must be given to provide for the loss of heat when certain portions of the body are exposed

Dr. Charles Hunter Dunn Boston The factor of individual variation enters into these calculations to an enormous extent. In working out figures for metabolism and calories what evidence is there that they can be applied to other children, since there may be a wide individual variation It is a great mistake foreign investigators have made when they assume that if they take a certain number of figures and divide their sum by the number of cases the result will be applicable to an individual The result is never applicable to any individual baby

Dr. Godfrey R. Pisek New York I should like to ask Dr Talbot whether he does not think the estimate is low for the amount of energy the child used in nursing

Dr. B Raymond Hoobler Detroit It would seem that Dr Talbot has approximated very nearly the actual heat production of these babies I think we are finding that nearly all active children require 110 125 or even 150 calories per kilogram of body weight All the factors in this estimation have been very accurately worked out

Dr. Fritz B Talbot, Boston In regard to the loss of heat from exposure, the surrounding temperature makes no difference in the amount of heat the baby produces, unless there is chilling and then when he shivers he produces heat He produces additional heat only when he performs additional exercise The new-born baby is sometimes given a water bath immediately after birth This is wrong as it may result in a subnormal temperature and a lowering of metabolic activity and depression of the vital functions If the new-born baby is strong enough to shiver and cry, it then produces heat and is able to withstand the shock. Dr Lusk has brought out an important point in a recent investigation in a boys' school The boys were very active, and a careful estimation of the number of calories they were consuming showed that they were eating one and one-half times as much as a laboring man

Studies on Blood Calcium

Dr David Murray Cowie, Ann Arbor Mich. The calculated amounts of calcium in the serum and corpuscles, respectively, of 100 c c of ox blood and of man's blood show that the serum of ox blood contains more calcium than the serum of man s blood The corpuscles and fibrin of man s blood contain more calcium than the corpuscles and fibrin of ox blood The whole blood of man contains more calcium than whole ox blood The possibility of a variation in the relative proportion of corpuscles and serum under altered states of the organism must also be taken into consideration There is more serum per volume of blood in severe anemia and in cases of hydremia

Uric Acid Content of the Blood in the New-Born

Drs Julius P Sedgwick and F B Kingsbury, Minneapolis We have endeavored to determine whether or not the high uric acid excretion during the first few days of life is accompanied by a simultaneous increase of this substance in the blood All the new-born subjects that served in this investigation were normal We found that the average values for sixteen determinations of the uric acid content of the maternal and placental blood were identical, being about 3 mg per hundred mg blood In some cases the infants were given water in addition to the ordinary diet of breast milk The uric acid content of the blood is higher the first three or four days after birth than at birth In the period between the second and third days the value reaches a maximum During the first three or four days this value was higher than the maternal and placental figures From a maximum of 3.9 mg the blood uric acid falls off slowly to 2.9 mg on the fifth day and then falls rapidly to 1.6 mg by the eighth to the eleventh day These results fit well as the connecting link in the theoretical chain of early leukocytosis, fall in leukocytosis flood of uric acid in the blood, high uric acid excretion, and uric acid infarcts

DISCUSSION

Dr Percival J Eaton Pittsburgh You said that some of these babies were getting water and others were not Did you notice a greater concentration of uric acid in the urine of the former?

Dr J P Sedgwick Minneapolis We did not make any examinations of the uric acid excreted in the urine, but only of the uric acid content of the blood

Focal Lesions Produced in the Rabbit by Colon Bacilli Isolated from Pyelocystitis Patients

Dr. Henry F Helmholz and Miss Carol Beeler Evanston, Ill The mode of infection in pyelocystitis is still an open question but in recent years prominence has been given to the hematogenous route of infection In order to determine whether pyelocystitis could be produced by the hematogenous route experiments were performed on rabbits There were two series of experiments In the first series, sixty-six animals were injected intravenously with eight different strains of colon bacilli Of the sixty-six animals, twenty-six showed focal lesions of one kind or another The organs were affected as follows kidney eleven times, cecum seven times gallbladder seven times appendix five times, stomach four times, in addition there were single instances of hemorrhagic infarction of the descending colon, ulcerative colitis hemorrhagic enteritis and duodenal hemorrhages Thus, the organisms did not show any special tendency to localize in the kidneys and focal lesions were just as likely to appear in any organs of the gastro-intestinal tract In 90 per cent of instances, the rabbit can excrete colon bacilli through the kidney without harm to the kidney itself

In the second series of experiments, a mixture of colon bacilli and pneumococci were injected into eleven animals The kidneys were infected in six of the eleven rabbits, or in about 60 per cent This is, relatively, a much larger number than in the first series It is possible that in human pyelocystitis there is a double infection, and the second one is overlooked It is possible, therefore to produce typical pyelocystitis in the rabbit by intravenous injection of colon bacilli, isolated from human cases The relative number of kidney infections is greatly increased if a mixture of organisms is injected

DISCUSSION

Dr. Charles Hunter Dunn, Boston A baby coming under our observation was aspirated for empyema, and the pus from the chest showed a pure pneumococcus infection. A blood culture showed no pneumococcus but a pure culture of colon bacilli Two days later the child developed a typical pyelocystitis I was formerly not inclined to favor the hematogenous theory of infection in pyelocystitis, but I am coming more and more to believe in it

Dr. William Palmer Lucas San Francisco One of my house surgeons has repeated Dr Helmholz' work, and our results have been practically identical From our present knowledge we are warranted in thinking that there is no definite localization in the kidney, but a general infection by which any of the viscera may be infected

Dr Henry Heiman, New York If one accepts the theory that pyelocystitis is a hematogenous infection involving other organs as well as the kidneys, and that the colon bacillus is the predominating organism, how are we going to explain the fact that of the cases in which the pelvis of the kidney is infected, 75 per cent occur in girls, in whom infection through the urethra occurs more readily than in boys?

Dr Henry F Helmholz, Evanston, Ill I have been much interested in Dr Dunn's case which showed the colon bacilli in the blood, and pyelocystitis developed It has been my experience that if other organisms are present that may possibly have caused the pyelocystitis, one may not find them but usually finds a member of the colon group This is because the colon bacilli have a tendency to overgrow other organisms It is not necessary to assume that, because in one case the infection is by the hematogenous route, all patients with pyelocystitis are infected by this route I believe the kidney can be infected in a number of ways

Case of Precocious Menstruation

Dr William Palmer Lucas, San Francisco This case may also be reported as one of linear nevus, because the patient showed an interesting skin lesion and marked keratitis The patient was a girl, 19 months of age, whose family and past history were entirely negative, save for the fact that she began to menstruate when 15 months of age She had a slight flow of blood from the vagina, and was more irritable than usual at that time She also had a linear skin lesion between the nose and lip on the right side, which was yellowish verging into brown, and resembling a keratitic condition She had well developed mammae and a somewhat advanced development of the small bones Her intelligence was normal The faculty of attention was phenomenally developed, she did things systematically that it would have been difficult for a child 3 or 4 years of age to do

DISCUSSION

Dr Howard C Carpenter, Philadelphia Cases of polypoid sarcoma of the vagina have been reported in children in whom there has been hemorrhage The possibility of neoplasm must be considered before making a diagnosis of precocious menstruation

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below

American Review of Tuberculosis, Baltimore

June, I, No 4

1 Tuberculosis Theses, Diagnostic, Prognostic, Therapeutic J Brown, Saranac Lake, N Y—p 193
2 *Diagnosis of Pulmonary Tuberculosis L Hamman, Baltimore—p 206
3 *Parafuchsin as Stain for Tuberculosis Bacilli P A Lewis and R B Krauss, Philadelphia—p 218
4 *Experimental Tuberculosis in Guinea Pigs Following Preliminary Treatment with Tuberculin by Nose H Sewall, C F Hegner and C Powell, Denver—p 220
5 Undergraduate Instruction in Tuberculosis A K Krause, Baltimore—p 233

2 **Diagnosis of Pulmonary Tuberculosis**—Although he has practiced physical diagnosis assiduously, Hamman still regards expert pulmonary examinations as the most difficult field of internal medicine He believes that the majority of physicians never attain unusual skill in detecting slight pulmonary abnormalities There is little danger of the average physician finding too much in the lungs, for often lesions that are gross to the expert are to him sources of difficulty and uncertainty Furthermore, a large number of tuberculous patients never pass through what could be called clinically an early stage, and therefore physicians have not the opportunity to detect the disease in this favorable period In those instances in which the disease comes on more slowly, early diagnosis will be favored by putting a careful clinical study of symptoms above the censorship of percussion and auscultation Sputum examinations, the Roentgen ray and the tuberculin tests are valuable additional aids, but the information furnished by the Roentgen ray and by tuberculin must be interpreted cautiously The great obstacle in the way of early diagnosis is the difficulty of separating tuberculous infection from tuberculous disease If physicians can ever distinguish clinically that nice point where latent infection first passes into threatening activity, the problem of early diagnosis will be solved At present this point is blankly obscure and physicians have no means of deciding definitely which doubtful cases are within safety, which have just passed without and which are hovering about the threshold Therefore, the early diagnosis of pulmonary tuberculosis is nearly always a probability diagnosis, for when absolute evidence appears the disease is seldom in an early stage There will always be differences of opinion among clinicians about such diagnoses and about the evidence on which they rest The important lesson for the physician is that while he must investigate thoroughly and judge cautiously, still he must be willing to act on reasonable probability and not allow the patient's life to be thrown away as he calmly awaits the full verification of his suspicions The important lesson for the sociologist is that he must see the insuperable difficulties in the way of early diagnosis on a large scale and abandon his efforts to make early diagnosis an essential feature of the campaign for the eradication of tuberculosis

3 **Parafuchsin as Stain for Tubercle Bacillus**—Lewis and Krauss are using pararosanilin as a stain for the tubercle bacillus Pararosanilin salts have the essential staining qualities of rosanilin salts, and the tubercle bacillus when stained with them resists decolorization with acids in the same degree Owing to difference in solubility, the solutions of pararosanilin salts must contain more alcohol in order to be effective The method of employing pararosanilin is 1 Make a saturated alcoholic solution 2 Add 20 c c of this to 80 c c of a 5 per cent. solution of phenol The result is a clear solution of about the same color intensity as the usual carbol fuchsin When heated over the free flame the alcohol burns off and there is somewhat more rapid precipitation of the dye than there is with the old preparation In the meantime, however, staining has taken place with the usual intensity and the resistance to decolorization by acids is the same

4 **Experimental Tuberculosis in Guinea-Pigs**—Three preparations of tuberculin, a Berkefeld filtered watery extract and two emulsions of ground bacilli of different concentrations were used by the authors on three groups of guinea-pigs After a preliminary course of tuberculin instillations by the nose each group of treated pigs, together with a number of normal animals, was given a series of spaced intravenous injections with the corresponding tuberculin At intervals of fifty-six and one hundred and twelve days after the last intravenous injection all animals were inoculated with a culture of virulent tubercle bacilli For each form of tuberculin used in the preparatory treatment the average duration of life after inoculation with the living germs was decidedly less in animals which, in addition to the spaced intravenous injections, had undergone a course of nasal instillation than in those (controls) which had suffered intravenous injections alone Also, the duration of life was shorter in pigs which had received the smaller quantities of tuberculin by the nose than in those which had received the larger Compared with normal animals inoculated with tubercle bacilli without previous treatment (final controls) the resistance of the instilled pigs was unchanged or slightly lowered, while that of those which had received intravenous injections of tuberculin without previous instillation was somewhat decidedly raised So far as these experiments go they point to the conclusions that the influence of absorption of small quantities of tuberculin by the nose, followed by a series of spaced intravenous injections either does not change or slightly lowers the normal resistance of guinea-pigs toward tuberculosis, while the

intravenous injections alone without preliminary instillation, rather decidedly raises resistance.

Annals of Otology, Rhinology and Laryngology, St Louis

March XXIV No 1

6 Technic of Examination of Static Labyrinth I H Jones and L Fisher Philadelphia—p 1
7 Analytic Study of Rinne and Other Tuning Fork Tests J W Downey Jr Baltimore—p 31
8 Suppurative Labyrinthitis Diagnosis and Treatment. A B Duel New York—p 54
9 Cyema in Fossa of Rosenmueller Causing Deafness I M Heller New York—p 70
10 Histopathology of Nose and Throat L. K. Guggenheim, St Louis—p 73
11 Tonsils as Atrium of Infection in Poliomyelitis E. M Seydell Wichita—p 98
12 Tubercular Mastoiditis—Radical Operation under Cocain Anesthesia H Hays New York.—p 109
13 Salivary Fistula Following Simple Mastoidectomy with Cervical Abscess I C Schreiber, Washington D C—p 113
14 Case of Labyrinthine Fistula with Complete Loss of Cochlear Function and Persistence of Normal Vestibular Function J Auerbach, New York—p 117
15 Results in Four Cases of Modified Radical Operation for Chronic Purulent Otitis Media H B Blackwell New York—p 121
16 Tonsil Question in Children C W Root Chicago—p 129
17 Clinical Problems Relating to Faucial Tonsils in Adults C I Shambaugh Chicago—p 135
18 Surgical Treatment of Suppuration in Jugular Bulb J McCoy New York—p 140
19 Salient Facts Regarding Tonsils in Children and Adults J C Beck Chicago—p 149
20 Diagnosis of Inflammatory Diseases of Labyrinth J B Rae New York.—p 181
21 Treatment of Labyrinthine Affections. W C Phillips New York.—p 189

Canadian Medical Association Journal, Toronto

June VII No 6

22 Case of Diabetes Associated with Hemochromatosis A H McCreery Pittsburgh—p 481
23 Modern Laboratory Investigation of Nephritis R W Mann Toronto—p 503
24 Fractures of Skull from Neurologic Standpoint G D Robins Montreal—p 529

22 **Diabetes Associated with Hemochromatosis**—The outstanding points in the case cited by McCreery both from the clinical and pathologic side would indicate the following conditions The patient was a man 46 years of age, he was a plumber by occupation and had been a heavy whisky drinker From 1902 until his death he suffered many gastro-intestinal disturbances and loss of weight There was pain and tenderness in the epigastrium but the liver was not obviously enlarged The spleen was not palpable. The patient yearly suffered attacks of influenza and had numerous attacks of neuralgia rheumatism and lumbago On Aug 22 1913 there was found a trace of sugar in the urine which soon became excessive and the patient rapidly weakened Acetone and diacetic acid were found in December 1913 and the patient died in semicoma with a terminal decrease in percentage of sugar and almost suppression of urine on Jan 12 1914 At no time was the urine sugar-free At necropsy there was found hemochromatosis of liver, heart spleen, suprarenal thyroid and lymph glands portal cirrhosis of liver and fibrosis and fat necrosis of the pancreas The pathologic findings therefore were typical of the so called bronzed diabetes

Colorado Medicine, Denver

June XIV No 6

25 Strabismus or Squint Its Treatment by Glasses J J Pattee Pueblo—p 151
26 Surgical Tuberculosis of Peritoneal Cavity O M Shere Denver—p 154
27 Application of Prognostic Lines on Roentgenograms in Treatment of Joint Fractures E H Skinner, Kansas City Mo—p 159
28 Balance of Powder in Infection H G Wetherill Denver—p 168
29 Diarsenol Administered by Brayton's Simplified Method of Giving Salvarsan. H T Low Pueblo—p 170

Florida Medical Association Journal, Jacksonville

May III No 11

30 Bacteria in Economy of Nature. H Byrd Princeton.—p 324
31 Early Diagnosis and Home Treatment of Pulmonary Tuberculosis R H McGinnis Jacksonville—p 330
32 Leading and Misleading Symptoms of Kidney Stones E P Merritt Atlanta Ga—p 331
33 Diagnosis and Treatment of Incipient Senile Cataract W H Adams Jacksonville—p 333
34 Appendiceal Abscess Its Treatment and Comparative Frequency in Small Towns and Rural Districts N A Baltzell, Marianna—p 336
35 Neurasthenia J B White, Ormond—p 339
36 Cancer I I Ferris Apalachicola—p 341

Georgia Medical Association Journal, Augusta

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37 Sins of Omission and Commission of General Practitioner of Today C K Sharp Arlington—p 27
38 Tender Heel T Toepel, Atlanta—p 29

Journal of Biological Chemistry, Baltimore

June XXX No 2

39 *Peptone Hypoglycemia H McGuigan and E L. Ross Chicago—p 175
40 Role of Yeast in Nutrition of Insect (Drosophila) J H Northrop New York—p 181
41 Influence of Protein Intake on Creatin Excretion in Children W Denis and J G Kramer, Boston—p 189
42 Enzyme and Reaction of Medium in Autolysis M Morse, Chicago—p 197
43 Biologic Efficiency of Potato Nitrogen M S Rose and L. F Cooper New York—p 201
44 Alleged Ninhydrin Reaction with Glycerol, etc V J Harding Montreal Canada—p 205
45 Improved Chemical Methods for Differentiating Bacteria of Coli Aerogenes Family W M Clark and H A. Lubs, Washington—p 209
46 Thermal Decomposition of Oxytocic Principle of Pituitary Solution H S Adams New Brunswick N J—p 235
47 Nutrition Investigations on Cottonseed Meal A E Richardson and H S Green Austin Texas—p 243
48 Use of Van Slyke Carbon Dioxid Apparatus for Determination of Total Carbon Dioxid in Sea Water J F McClendon, Minneapolis—p 259
49 Standardization of New Colorimetric Method for Determination of Hydrogen Ion Concentration, Carbon Dioxid Tension and Carbon Dioxid and O_2 Content of Sea Water, of Animal Heat and of Carbon Dioxid of Air, with Summary of Similar Data on Bicarbonate Solutions in General J F McClendon Minneapolis—p 265
50 Studies of Acidosis Bicarbonate Concentration of Blood Plasma Its Significance and Its Determination as Measure of Acidosis D D Van Slyke and G F Cullen New York.—p 289
51 *Id Method for Determination of Carbon Dioxid and Carbonates in Solution D D Van Slyke New York—p 347
52 Id Electrometric Titration of Plasma as Measure of Its Alkaline Reserve G E Cullen New York—p 369
53 Id Relationship Between Alkaline Reserve and Acid Excretion R Fitz and D D Van Slyke New York—p 389
54 Id Alveolar Carbon Dioxid and Plasma Bicarbonate in Normal Men During Digestive Rest and Activity D D Van Slyke, E Stillman and G E Cullen, New York.—p 401
55 Id Blood, Urine and Alveolar Air in Diabetic Acidosis E Stillman, D D Van Slyke, G E Cullen and R Fitz, New York.—p 405

39 **Peptone Hypoglycemia**—Dogs, not uniformly controlled as to diet, general condition or time after eating were injected intravenously with 0 3 to 0 5 gm of Witte's peptone per kilogram of body weight. The blood sugar was determined before the injection and at intervals of two and four hours after the injection In every case hypoglycemia developed The average fall for thirteen dogs was 0 03 per cent glucose or 34 to 38 per cent. of their original blood sugar

41 **Protein Intake and Creatin Excretion**—Experimental results are presented on four children and one infant in which it is shown that the amount of creatin found in the urine of children is directly dependent on the intake of protein being high when large quantities of protein (creatin free) are ingested decreasing and in some cases disappearing entirely when the child is fed a diet of an extremely low protein content. Creatinuria in normal children is therefore due to the relatively high protein intake which is the rule with practically all children, that it may also be due to the low saturation point of immature muscle is suggested by the small creatin content of the muscles of children and by the relatively low level of protein consumption at which appreciable quantities of creatin are excreted

46 **Oxytocic Principle of Pituitary**—Adams found that the constituent of pituitary solution which affects the isolated uterus is rapidly destroyed at 100 C when the hydrogen-ion concentration of the solution is of the order of $N \times 10^{-8}$

Oxygen seems not to be involved in the decomposition under the conditions of the experiment The oxytocic principle becomes thermostable when the hydrogen-ion concentration is increased to the order of $N \times 10^{-3}$

50 **Blood Plasma Bicarbonate**—Reasons are discussed by Van Slyke and Cullen for basing both the definition of acidosis and the methods for its detection on the blood bicarbonate Experiments are detailed showing both in vivo and in vitro the influence on the plasma bicarbonate of various factors, in particular of the shift of bases and acids between plasma and corpuscles under the influence of changing carbonic acid concentration A simple technic has been developed by means of which the capacity of the plasma to combine with carbonic acid under definite tension is determined as a measure of the alkali in excess of acids other than carbonic The plasma, from oxalated blood, drawn and centrifuged under definite conditions, is shaken at room temperature in a separatory funnel filled with alveolar air from the lungs of the operator, or with an artificial air mixture containing 5 5 per cent of carbon dioxid The carbon dioxid content of the plasma is then determined by the method described in the next paper The results are calculated in terms of bicarbonate and are tabulated The value determined appears to indicate not only the alkaline reserve of the blood, but also that of the entire body

51 **Determination of Carbon Dioxid**—A simple one piece apparatus is described by Van Slyke for determination of the carbon dioxid or carbonate content of water solutions It has been designed especially for analysis of 1 c c. samples of blood plasma, but is applicable to water solutions in general as well as to the determination of dissolved gases other than carbon dioxid The entire analysis is performed at room temperature, requires about three minutes, and without especial precautions is capable of accuracy to within 1 per cent of the amount determined A micro-apparatus designed on a similar principle is described With it the carbon dioxid content of 0 2 c c of plasma can be determined with an accuracy of one volume per cent

Journal of Immunology, Baltimore

June, II, No 4

56 Noninfluence of Injections of Pure Proteins on Proportions of Globulin and Albumin in Blood Serum E S Schmidt and C L A Schmidt, San Francisco—p 343
57 Immunologic Studies in Typhus Exanthematicus P K Olitsky, New York—p 363
58 *Experiments with Possible Bearing on So Called Nonspecific, Intravenous Vaccine Therapy O Teague and H I McWilliams, New York—p 375
59 Spontaneous Agglutination in Typhoid and Paratyphoid Cultures and Its Bearing on Absorption of Agglutinins O Teague and H I McWilliams, New York—p 383
60 Selection of Horses for Production of Diphtheria Antitoxin by Intrapalpebral Toxin Test A P Hitchens and E. K Tingley, Glenolden, Pa—p 395
61 *Relation between Antigen and Antibody in Living Animal R Weil, New York—p 399
62 Cutaneous Antibodies in Guinea Pig M W Cook and G H Smith, Glenolden, Pa—p 415
63 Absorption of Antigen, Repetition of Work Reported by Doerr and Pick G H Smith and M W Cook, Glenolden, Pa—p 421
64 Antigenic Classification of Group IV Pneumococci M Olmstead, New York—p 425
65 Vasomotor Depression in Canine Anaphylaxis R Weil, New York—p 429

58 **Nonspecific, Intravenous Vaccine Therapy**—The hypothesis has been suggested by Teague and McWilliams that the intravenous injection of vaccine brings about a transfer of bactericidal substances (complement, or bactericidal antibody, or both) from the blood to the tissue fluids or lymph and in this way increases resistance According to this hypothesis the reaction should not be specific, *B coli* vaccine, as well as typhoid vaccine should be able so to affect the blood capillaries as to allow the passage of these substances through their walls Experiments recorded by the authors have demonstrated that the reaction is, in fact, nonspecific in this sense The fact that rabbits are rendered more resistant to typhoid by a preliminary injection of *B coli* vaccine as well as by typhoid vaccine and that typhoid patients are cured by crisis by both kinds of vaccine makes it seem all the more likely that the same phenomenon is concerned in both reactions The authors believe that their hypothesis offers the best explanation, not only of the new treatment of typhoid, but also of those other instances of so-called nonspecific vaccine therapy mentioned above, the bactericidal antibodies in each instance are probably transferred from the blood, where they are present in excess, to the tissue fluid where they are urgently needed It is probable that opsonins and other antibodies, and perhaps complement, are similarly transferred and play a part in destroying the infecting organism in the diseased tissues The cure would be brought about then, after all, by means of specific antibodies and their ideas with regard to immunity reactions would not have to undergo a radical revision as has been predicted by some writers

61 **Antigen and Antibody in Living Animal**—With the earliest appearance of reactive antibody in the cells, the same material begins to be discernible in the serum, and so, coincident with the intracellular destruction of antigen, there goes an extracellular precipitation of the circulating antigen in the blood It is almost certain that this circulating antibody is derived from the reacting cells Thus, gradually, the response of the cells serves to eliminate all the foreign protein from the body, both that which the cells have taken up and that remaining in circulation But, says Weil, it is essential to keep in mind the fact that it is the anchoring of the protein which stimulates the cells to react, and which therefore constitutes the first step in the elimination The cases, in which the cells fail to anchor the foreign protein, no antitoxin is produced, and for an indefinitely long period the foreign protein remains within the body

In one respect in particular, the cellular response is of great physiologic importance With it goes a marked interference with normal cellular activities, which in human beings takes the form known as serum sickness There are fever, cutaneous eruptions, joint manifestations, albuminuria and other untoward effects In animals, death may ensue These phenomena indicate that the symptoms of the infectious diseases may depend in no small measure on the gradual destruction of the foreign protein of the disease by the cellular antibodies At all events, it must be admitted that the symptomatology of serum sickness, caused by an absolutely nontoxic and innocuous foreign protein, such as horse serum, can in many respects not be differentiated from that of an acute infectious disease This remarkable fact goes far to bring home the great importance of such processes as are involved in the reaction of the cell to foreign protein, and is essential to the comprehension of some of the most common phenomena of clinical medicine, as well as of cellular physiology in a general sense

Journal of Infectious Diseases, Chicago

July XXI, No 1

66 *Bacteriology of Acute Epidemic Respiratory Infections Commonly Called Influenza G Mathers, Chicago—p 1
67 Leptothrix Associated with Chronic Bronchopneumonia G F Dick, Chicago—p 9
68 *Intravenous Injection of Typhoid Vaccine. C S Kibler and L. F McBride, Chicago—p 13
69 *Agglutination in Typhus G Baehr, New York—p 21
70 *Possibility of Typhoid Infection Through Vegetables C O Melick, Chicago—p 28
71 Voges Proskauer and Correlated Reactions of Coli Like Bacteria M Levine, J C Weldin and B R Johnson, Ames, Iowa—p 39
72 Influence of Oxygen Tension on Morphologic Variations in B Diphtheriae W B Wherry, Cincinnati—p 47
73 Ninhydrin Reaction in Examination of Cerebrospinal Fluid N Novick, New York—p 52
74 Nature of Plague Proteotoxins F Eberson, China—p 56
75 American Mortality Statistics and Mills-Reincke Phenomenon E B Fink, Chicago—p 62
76 Effect of Injection of Nonspecific Foreign Substances on Course of Experimental Rabies W H Burmeister, Chicago—p 95

66 **Acute Epidemic Respiratory Infection**—In a bacteriologic study of material from sixty-one cases of acute respiratory infection the influenza bacillus was found by Mathers

in only one instance and then in small numbers On the other hand virulent hemolytic streptococci similar in cultural characteristics and virulence to the streptococcus commonly associated with epidemic sore throat and scarlet fever were found in the nose throat, and pharynx in forty-six and in the blood in three cases of this epidemic disease *Streptococcus viridans* and the pneumococcus were each found in thirty instances these organisms in virulence and biologic characters closely resembling the organisms found in the normal mouth The predominance in the discharges from the nose throat and pharynx of patients suffering from the epidemic respiratory infection of a virulent hemolytic streptococcus not usually found in the normal mouth the absence of the influenza bacillus and the character of the associated pathologic changes suggest that this disease was caused by a virulent hemolytic streptococcus

68 **Intravenous Injection of Typhoid Vaccine**—The immediate results of the intravenous injection of typhoid vaccine such as chill, rise and fall of temperature leukocytosis and changes in the concentration of agglutinin and opsonin usually in the direction of an increase were the same in the normal man as in the typhoid patient and the authors' results do not support the view that the reaction is essentially specific. Except so far as they show that leukocytosis is rather constant after the injection of vaccine they do not appear to support any particular view advanced to explain the action of intravenous injection of foreign protein in infectious diseases The number of cases observed (six) is too small to allow any conclusions as to the therapeutic effect of typhoid vaccine in typhoid but the results obtained would seem to correspond fairly well with the results obtained in larger series

69 **Agglutination in Typhus**—All together 271 agglutination tests were made by Baehr on the serum of 100 persons with typhus In forty-six of the patients from three to eight examinations were made at intervals during the illness and early convalescence The rest were only examined on one or two occasions Agglutinins were demonstrable in forty three of the forty-six cases studied systematically or in 93 per cent No agglutinins were found in the serum of three typhus patients, examined four five and six times respectively during the course of the disease and early convalescence

70 **Typhoid Infection Through Vegetables**—Melick concludes that vegetables grown in soil fertilized with fresh typhoid excreta shortly before planting or during the growing season are likely to be contaminated at the time they reach the consumer Vegetables so contaminated are not made safe by the ordinary methods used in the preparation of such foods for table use and may therefore, be a source of typhoid infection

Journal of Urology, Baltimore

April 1 No 2

77 *Experimental Nephropathy in Dog Lesions Produced by Injection of Bacillus Bronchisepticus into Renal Artery M C Winternitz and W C Quinby Baltimore—p 139
78 *Case of Multiple Myelomas with Chronic Nephritis Showing Bence Jones Protein in Urine and Blood Serum A C Jacobson Boston—p 167
79 *Injuries to Pancreas Following Operations on Right Kidney H H Young and J A C Colston Baltimore—p 179
80 *Comparative Influence of Morphin and Total Opium Alkaloids on Renal Colic D I Macht Baltimore—p 201
81 Growth of Bacillus Coli in Urine at Varying Hydrogen Ion Concentrations A. T Shohl and J H Janney Baltimore—p 211
82 Verumontanum with Special Reference to Sinus Pocularis Its Anatomy Histology and Physiology A. G Rytina Baltimore p 231

77 **Experimental Nephropathy**—The experiments made by Winternitz and Quinby showed that spontaneous renal lesions similar even in detail to those found in the human kidney in the progressive, nonsuppurative types of nephritis may be experimentally produced in dogs by the injection of the bacillus bronchisepticus into the renal artery The results of this injection vary, but the animals tend to group themselves as follows 1 Those in which no demonstrable general infection occurs, the kidney, however, shows immediate acute inflammatory lesions which rapidly subside and result in focal scars associated with intermittent albuminuria and cylindruria 2 Those that died acutely with a fulminating renal lesion and an acute general infection 3 Those in which there was definite evidence of general infection as well as renal involvement The first subsided while the kidney changes progressed, and led so rapidly to functional impairment that the organ was unable to maintain its efficiency after the other kidney had been removed

78 **Multiple Myelomas with Chronic Nephritis**—The case reported by Jacobson was one of multiple myelomas of the plasma cell, nongranular nonoxydase type It is said to be the first instance reported in which there was associated definite clinical evidence of advanced nephritis with retention of a large measurable amount of the Bence-Jones protein in the circulating blood

79 **Injuries to Pancreas**—A few cases have been observed by Young and Colston in which extreme abdominal distention followed kidney operations In one of them it was found necessary to perform an enterostomy for the relief of the obstruction following which the patient made an uninterrupted recovery The remaining cases of uncomplicated distention yielded rapidly to the usual simple methods The two cases in which the pancreas had suffered injury are given in detail on account of their rarity and interest In summary they are Case 1 Renal calculus Right nephrotomy Bleeding from aberrant vessel stopped by blind clamping and pressure Postoperative intestinal obstruction Enterostomy Death Necropsy Pancreatitis fat necrosis Case 2 Right renal Calculus Operation kidney very adherent at upper pole, pyelotomy Postoperative intestinal obstruction, requiring enterostomy Development of glycosuria ℞ Pancreatin Slow convalescence and cure Another case was an example of severe distention leading to intestinal obstruction which is not infrequently seen after rightsided renal operation However in this case there was no demonstrable injury to the pancreas either at the time of the enterostomy operation or in the subsequent postoperative course Case 3 Nephrectomy for large hypernephroma Difficult operation on account of hemorrhage Postoperative nausea vomiting and distention Intestinal obstruction requiring enterostomy on fifth day Recovery

The authors point out that injury to the pancreas can best be avoided by an adequate incision for the exposure of the kidney and careful ligation of all structures divided in freeing the upper pole, and the probability of the presence of anomalous vessels must be kept in mind and care taken to ligate them securely Injury to the pancreas should be suspected following operation on the right kidney in the presence of extreme abdominal distention and rapid prostration Rapid enterostomy offers a chance of preserving life by relief of the intestinal obstruction but if the injury is extensive enough to cause widespread extravasation of pancreatic secretion the condition is hopeless Traumatism to intestine by retractors, clamps or gauze packs may also cause intestinal distention or even obstruction Care in hemostasis and good exposure without violent retraction and traumatism is of prime importance in renal surgery

80 **Influence of Morphin and Total Opium Alkaloids on Renal Colic**—Macht claims that morphin produces an increase in tonicity and in the rate of contractions of the ureter Papaverin and narcotin produce a relaxation of the tonus of the ureter and an inhibition of its contractions Opium and other combinations of total opium alkaloids contain enough papaverin and narcotin to overcome the spasmodic local effect of morphin and are therefore to be preferred to morphin in case of ureteral colic

Journal-Lancet, Minneapolis

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83 Getting Returns from Sanatorium Investments A T Laird Nopeming—p 404

Journal of Abnormal Psychology, Boston

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84 Study of Anesthesia Convulsions Vomiting Visual Constriction Erythemia and Itching E J Kempf, Washington D C—p 1

85 Some Analyses in Psychopathology of Everyday Life H W Frink, New York—p 25
86 Mental Imagery of Stutterers Examination of Certain Current Theories J M Fletcher, New Orleans—p 34
87 Stuttering Boy K Dunlap, Baltimore—p 44
88 Deforming Influences of Home H W Brown, White Plains, N Y—p 49
89 Meaning of Psychanalysis T Burrow Baltimore—p 58

Kansas Medical Society Journal, Topeka

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90 Recent Progress in Surgery of Bile Passages, Plea for More Thorough Operations D N Eisendrath, Chicago—p 149

Laryngoscope, St Louis

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91 Nonsurgical Treatment of Inflammation of Nasal Accessory Sinuses W A Wells, Washington, D C—p 397
92 Plica Triangularis and Its Morphologic Variations Causative Factor in Production of Foci of Infection and Irritation F G Murphy, Mason City, Iowa—p 409
93 Relation of Glands of Internal Secretion to Otolaryngology J C Beck, Chicago—p 422
94 Importance of Internal Secretions in Ear, Nose and Throat Affections with Special Reference to Hypophysis H L Pollock, Chicago—p 430
95 Campaign Voice L D Alexander, Jr, New York—p 441
96 Traumatic Deflections of Nasal Septum and Their Treatment O Orendorff, Canon City, Colo—p 445
97 Frontal Sinusitis Probable Cause of Acute Nephritis G F Keiper, Lafayette, Ind—p 449
98 Case of Nasal Papilloma, Surgical Removal Followed by Roentgen Ray Treatment C E Ide, Los Angeles—p 452

Nebraska State Medical Journal, Norfolk

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99 New Health Department of Nebraska E W Rowe, Lincoln—p 303
100 Tuberculosis, Early Recognition G Reeder, Fremont—p 309
101 Acute Miliary Tuberculosis A J Baker, Grand Island—p 315
102 Relation of Food to Nervous Disturbances in Infants and Children J C Moore, Omaha—p 317

New York Medical Journal

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103 Constructive Suggestions Toward Control of Tuberculosis in Times of Peace and in Time of War S A Knopf, New York—p 1181
104 Birth Control and Physician B S Talmey, New York—p 1185
105 Duality of Voice J S Greene New York—p 1192
106 Constructive Suggestions Toward Control of Syphilis, Gonorrhea, Pneumonia, Malaria, Typhoid and Typhus I S Wile, New York—p 1195
107 Constructive Suggestions Toward Control of Measles, Scarlet Fever, Diphtheria and Whooping Cough S J Baker, New York—p 1198
108 Sinus Thrombosis Following Fracture of Skull, with Subsequent Acute Mastoiditis and Erysipelas W W Carter, New York—p 1201
109 Nontuberculous Cases in Hospital for Advanced Consumptives J Kramer, New York—p 1202
110 Fatalities in Athletic Games and Deaths of Athletes R E Coughlin, New York—p 1204

Ohio State Medical Journal, Columbus

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111 Local Anesthesia for Tonsillectomy J A Thompson, Cincinnati—p 469
112 Physician in Court D S Gardner, Massillon—p 472
113 *New Method for Short Circuiting Colon W Griess, Cincinnati—p 476
114 Anesthesia and Analgesia in Obstetrics H Heffron, Metamora—477
115 Place of Individually Owned and Operated Hospital in Community B R McClellan, Xenia—p 478
116 *Treatment of Tuberculosis by Ether Anesthesia W E Savage, Cincinnati—p 480

113 **Method for Short Circuiting Colon**—The technic employed by Griess is as follows The ileum and sigmoid are divided at two given points The ends are then anastomosed by the end-to-end or lateral method as may suit the taste of the operator The open ends of the sidetracked intestinal tract are sutured to the abdominal wall in the line of the incision or at some convenient part The ends stitched to the abdominal wall will atrophy into two mucous teats which will secrete a little mucus The colon itself will atrophy and its removal, if necessary, will be found extremely easy In fact, there is no indication for its removal except for malignant disease, for if the object for short circuiting has been stasis, the remaining colon can be flushed out and after a short time the amount of mucus it secretes will be insignificant. The danger from this operation is said to be no greater than any other intestinal anastomosis and it fulfils a want that a pure lateral or end to side anastomosis will not fulfil, for a damming back into the sidetracked colon will occur

116 **Treatment of Tuberculosis**—Ether, given by the closed cone method, Savage says, is a valuable therapeutic agent in the treatment of peritoneal, pulmonary and meningeal tuberculosis Improvement is noticeable as soon as the patient recovers from the anesthetic Ether is of greatest benefit when used in uncomplicated tuberculous peritonitis and early pulmonary tuberculosis One anesthetic usually suffices In advanced cases of pulmonary tuberculosis the distressing symptoms of high fever, cough, expectoration, night sweats loss of sleep and appetite are very noticeably benefited for a period of from fifteen days to six months In advanced cases continued improvement has been noticed, not infrequently, with repeated anesthetics Ether cones can be made of a towel, heavy wrapping paper, and three safety pins In the apex of the cone a pledget of absorbent cotton is placed A few drops of ether are at first placed in the cone to allow the patient to become accustomed to the fumes Ether is gradually increased until the stage of excitement is reached, then a liberal supply is added and the cone kept snugly against the face, reinforced with a towel to exclude as much oxygen as possible, in this way the patient can be kept under as long as one thinks necessary

Pennsylvania Medical Journal, Athens

June XX, No 9

117 Workmen's Compensation Law of Pennsylvania from Physicians' Viewpoint W L Estes, South Bethlehem—p 627
118 Compensation for Industrial Diseases F L Hoffman, Newark N J—p 634
119 Carrel Method of Wound Sterilization W O Sherman, Pittsburgh—p 643
120 Treatment of Fractures of Long Bones from Viewpoint of Function E Martin, Philadelphia—p 658
121 National Standards for First Aid J C Bloodgood, Baltimore—p 666

Public Health Journal, Toronto

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122 Poliomyelitis H W Hill, London, Ont—p 139
123 Clinical Studies of Infantile Paralysis E J Durocher Windsor, Ont—p 141
124 Public Health in Average Town Ways and Means of Conducting C A Patterson, Forest, Ont—p 143
125 Practical Points in Enforcement of Regulations and Difficulties of Medical Officer of Health H Ross Clifford Ont—p 149
126 How Could Rural Municipality Employ Public Health Nurse? J F Hanly Almonte—p 153
127 Overcrowding—Why Is It Tolerated? T Watson—p 157

Southern Medical Journal, Birmingham

June X No 6

128 Some Problems in Etiology of Poliomyelitis W H Frost, Cincinnati—p 451
129 Simplified Infant Feeding G K Varden, Atlanta, Ga—p 457
130 Phenomenon of Hypertension Reading L B Newell, Charlotte, N C—p 464
131 Tuberculosis of Infants M E Lapham, Highlands, N C—p 465
132 Work of U S Public Health Service with Reference to Malaria R C Derivaux Washington, D C—p 473
133 Prophylaxis in Mental Disease W C Sandy, Middleton, Conn—p 478
134 Chylous Cysts of Mesentery Report of Case H R Shands, Jackson, Miss—p 484
135 New Growths of Clitoris W W Battey, Jr, Augusta, Ga—p 486
136 Radium Therapy E C Samuel, New Orleans—p 490
137 Gunshot Wounds of Chest Observed in Late Turko Balkan War and in Present European War E L Gilcreest, Dallas, Texas—p 496
138 Diagnosis of Traumatic Neurosis. L. Casamajor, New York—p 501
139 Fractures of Lower Extremity Treatment J C A Gerster, New York—p 505
140 End Results of One Hundred and Eleven Radical Mastoid Operations J A Stucky, Lexington, Ky—p 511
141 Technic of Tonsil Excision with Exhibition of Instruments M M Cullom, Nashville, Tenn—p 512
142 Advantageous Results of Tonsil Operation J G Murphy, Wilmington, N C—p 519

143 Secondary and College Education in South in Relation to Medical Education J H Kirkland, Nashville Tenn —p 526

Wisconsin Medical Journal, Milwaukee

June XVI No 1

144 Physician Past and Present H P Greeley Waukesha —p 1
145 Topographic Anatomy of Heart C R Bardeen Madison —p 6
146 Regulation of Heart in Health and Disease J A E Eyster Madison —p 8
147 Some Practical Consideration in Chronic Heart Disease A J Patek Milwaukee —p 12
148 Personal Hygiene for Soldiers G F Seaman —p 22
149 Duties of Medical Officers at Front J W Frew —p 25
150 Results of Examinations for Diagnosis of Gonorrhea I I Gilman Madison —p 27

145 **Topographic Anatomy of Heart**—From a study of a heart silhouette silhouette of the heart either on a roentgenographic plate or on a fluoroscopic screen in various conditions in health and disease Bardeen has gained new insight into what may be termed the living anatomy of the heart He found that the heart of a person in the recumbent position is larger than that of the same person sitting up The heart of a person in the sitting position is larger than that of one standing The variation in the size of the silhouette from the recumbent to the standing position may be over 30 per cent In an average of seven persons Bardeen found the increase from the recumbent to the sitting position to be 7 2 per cent from the recumbent to the standing position 18 2 per cent As a rule fat persons have hearts smaller in proportion to their weights than persons of normal weight and women of a given size have hearts somewhat smaller than men of the same size Their differences however are less marked than those mentioned above and are of relatively less interest to those not specialists in the diagnosis of cardiac disease Valvular disease may produce changes in the shape of the heart which while most manifest in the Roentgen ray silhouette may be determined by percussion Aortic disease is marked by a bulging of the lower left side of the heart mitral disease by a bulging of the upper left side and it marked by a bulging of the lower right side Incompetency of the tricuspid valve may cause a bulging of the upper right side.

FOREIGN

Titles marked with an asterisk ( ) are abstracted below Single case reports and trials of new drugs are usually omitted

British Medical Journal, London

June 2 1 No 2944

1 *British Surgery at Front. A Bowlby and C Wallace —p 705
2 Penetrating Wounds of Chest at Casualty Clearing Stations W Herringham —p 721
3 Administration of Anesthetics at Front G Marshall —p 722
4 Color Changes Seen in Skin and Muscle in Gas Gangrene C Wallace —p 725
5 *Method of Spread of Gas Gangrene into Living Muscle J W McNee and J S Dunn —p 727
6 *Successful Conservative Treatment of Early Gas Gangrene in Limbs by Resection of Infected Muscles C H S Frankau H Drummond and G E Neligan —p 729

1 **British Surgery at Front.**—Bowlby and Wallace in their summary of the present position record the leading facts which experience has established and describe the trend of surgical opinion and practice, more particularly in the treatment of abdominal wounds head injuries wounds of blood vessels fractures and joint injuries They point out the indispensability of the motor ambulance, around which one might safely say the whole surgical system from front to base has been organized Motor transport of the wounded and the casualty clearing station together form the keystones of the system and the saving of lives limbs and suffering due to their development since the early months of the war has been immense An important point made by the authors is that surgery at the front is a special branch of practice which all have to learn by direct experience, and a sound opinion on wound treatment comes to no one, however gifted, by the light of Nature. This seems to be specially true of the decision when and where to amputate Among other things the war has abolished the old formal amputation dear to the teachers of operative surgery and examiners of former days Another development in technic has been the early routine excision of damaged tissue and the use of moist dressings containing antiseptics such as neutral solution of chlorinated soda, which have been devised to meet the special conditions of wound infection at the front

In abdominal surgery it was demonstrated beyond doubt that under the conditions of this war early evacuation from the front line and immediate operation gave the only hope of success For some time past the rule has been to operate, unless there is some special reason to the contrary, not to await special indications but to open the abdomen and make a rapid, methodical examination of the intestine, suturing rents in the intestine and resecting only in cases in which this is inevitable The modern practice—aided by a special service of cars for hurrying abdominal cases to the clearing station or small advanced operating center—has resulted in a lowering of the death-rate estimated at between 15 and 20 per cent although the mortality from these wounds is still distressingly high

In the surgery of joints gratifying improvement has followed modern lines of treatment In head surgery effort has been directed toward devising the best operation and standardizing a general line of treatment adaptable to all varieties of cranial wounds It was found that head cases travel badly after operation although provided the pulse is slow they travel well, as a rule between injury and operation Early operation and prolonged rest after it is, therefore the ideal and this has been attained to some extent by the establishment of special hospitals neither too near nor too far from the line With regard to fractures of the limbs, the most important generalization seems to be that no amount of skilled after care can make up for improper early treatment Thorough deliberate operation is needed and, as would be expected the operating facilities of clearing stations combined with the Roentgen-ray plants which have sprung up in connection with them have brought about great improvement while the almost universal use of the Thomas splint and its progeny is an important factor In this article are detailed also the latest views on the causation and treatment of gas gangrene

5 **Method of Spread of Gas Gangrene**—The rapidity of spread of gas gangrene into living voluntary muscle is so remarkable as to require explanation by a different process from that which governs ordinary septic invasion of tissues It is suggested by the authors that the facts are accounted for by the peculiar anatomic structure of muscular tissue The sheaths enclosing the long individual fibers are so easily detachable as to form potential spaces into which toxic material can readily pass causing necrosis of the fibers The early selective invasion of single muscles is consistent with the above view

6 **Gas Gangrene in Limbs Treated by Resection of Infected Muscles**—In no case have the authors seen gas gangrene commencing as a subcutaneous infection injured muscle is in all cases the initial focus, the appearance of crackling in the subcutaneous tissues being a secondary phenomenon, due to extravasation of gas from the infected muscles below In view of this, it has been their aim to model treatment on the following lines as soon as the condition is diagnosed To explore the primary focus with a view to attempting to arrest the infection in the muscle, or group of muscles, involved by resection of the infected areas Such resection may involve a part or the whole of single muscles or groups of muscles Resection should be limited to cases in which the main vessel of the limb is intact, and should be replaced by amputation where the operation must be so extensive as to be likely to give a limb which would be of less value than an artificial limb Extensive resections, however, may be performed regardless of the ultimate utility of the limb as a life saving operation it having been quite clear in some of the cases recorded that an amputation could not have been carried out without very grave risk to life. Resection should extend until the muscle is reached which has the following characteristics 1 The color is unchanged 2. The contractility is normal 3 A good blood supply is present, as indicated by free bleeding from the cut surface. Experience

has shown that even if such muscles are, as they may be, slightly infected, free drainage and an open wound will arrest further development of the condition

Edinburgh Medical Journal

June, XVIII No 6

7 Infectious Diseases in Relation to Child Welfare C B Ker—p 389
8 Dermatology in Relation to Child Welfare N Walker—p 396
9 Id R C Low—p 401
10 Administrative Institutions Necessary for Welfare of Children under School Age L Mackenzie—p 404
11 Diseases of Eye in Children of and under School Age J V Paterson and H M Traquair—p 415
12 Diseases of Ear, Nose and Throat in Relation to Child Welfare J S Fraser—p 422
13 Child Welfare and Prevention of Dental Disease J H Gibbs—p 433
14 Medical Inspection and Supervision of Schoolchildren in Edinburgh J H Meikle—p 442
15 Legal Powers and Administrative Regulations W L Mackenzie—p 446

Lancet, London

June 2, I No 4892

16 Paratyphoid Infections C H Miller—p 827
17 *Leukocytes in Cases of Irritable Heart G Briscoe—p 832
18 *Influence of Maternal Oral Sepsis on Fetus and Marasmic Children E S Pierrepont—p 837
19 *Vaginal Plug in Treatment of Antepartum Hemorrhage E H Tweedy—p 840
20 Case of Placenta Praevia and Twins W G Reynolds and J O Thomson—p 841
21 Case of Tetanus Treated by Intramuscular Injections of Antitoxin G H V Appleby—p 841

17 **Leukocytes in Cases of Irritable Heart**—All the patients investigated by Briscoe were soldiers admitted to the hospital suffering from breathlessness or palpitation on slight exertion, faintness, giddiness, precordial pain and general lassitude Ninety-three counts were carried out on thirty-four patients and thirty-two counts on nine controls The average total count of the patients was 12,100 cells per cubic centimeters (lowest 6,800 highest 23,800) The average of the controls was 7,400 per cubic centimeters (lowest 5,000, highest 10,040) The degree of leukocytosis in these patients appeared to be directly proportional to the amount of exercise taken before the count was made, other factors, such as food, being the same Of thirty-eight counts made while the patient was in bed or after he had been lying on his bed for an hour, the average was 10 600 per cubic centimeters (lowest 6,800, highest 16,800) Of thirty-one counts on those patients walking about in the ordinary way, the average was 12,700 per cubic centimeters (lowest 7,100, highest 18,200) Of seventeen counts made immediately after a staircase exercise, the average was 15,000 per cubic centimeters (lowest 8,700, highest 23,800) In seven controls the average count after rest was 7 100 per cubic centimeters (lowest 5,700, highest 8,400), the average after a staircase exercise was 8,200 per cubic centimeters (lowest 6,200 highest 10 040) It appears, then, that in these cases, at absolute rest, there is a slight leukocytosis or no leukocytosis While up and about there is a decided leukocytosis In many, and especially in cases of long standing, there may be a relative and absolute lymphocytosis The variability of the different kinds of leukocytes is greater (more than double) than in normal individuals The response to muscular exercise is similar to that found in healthy subjects but is exaggerated in its degree This exaggerated response can be used as an objective sign in diagnosis The degree of leukocytosis and of variability in percentages after exercise is proportionate to the severity of the symptoms

18 **Influence of Maternal Oral Sepsis on Fetus and Marasmic Children**—Observations made by Pierrepont on some 500 cases show that the toxins from the maternal oral sepsis have a very strong influence in a large number of cases on the vitality of the rapidly growing fetus, so that the child is handicapped from before birth with a lowered vitality, and therefore the marasmic condition is antenatal in its inception Prematurity of birth and miscarriages, in which no other cause can be discovered, are brought about by the toxic state of the mother, induced by the septic condition of her mouth The diminution in the quantity, or alteration in the quality, of the mother's milk, where no other cause can be ascertained, is due to the selective affinity of certain toxins for certain secretory cells of the mammae, and in cases in which no such diminution or alteration can be demonstrated, then the toxins, and in some cases micro-organisms themselves, are in the milk In the toxemias of pregnancy and the puerperium the high pressure at which the emunctory organs are working is probably adversely influenced by the toxic state produced by the mouth, and this is the deciding factor in many cases that just brings the balance down on the wrong side and results in eclampsia or the other toxemic conditions

19 **Vaginal Plug in Antepartum Hemorrhage**—To plug efficiently, Tweedy says, the left hand should be passed into the vagina, the palmar surface directed toward the hollow of the sacrum, while the finger tips lie behind the cervix Small pieces of cottonwool, squeezed out of dilute compound solution of cresol and each the size of the thumb knuckle, are then taken and inserted by means of the right hand round the cervix The fingers of the left hand are kept busy squeezing the pellets into a compact mass and forcing the spaces between them to permit the insertion of still another plug This process is continued in a systematic manner from above downward till the vulva is reached and the vagina can hold no more A T-bandage is applied to keep the plug in position, and an abdominal binder is fastened tightly from above downward to press the side walls of the uterus against the vaginal dam, and thus completes the operation A plug so applied will cause immediate cessation of hemorrhage, and when it is removed after the lapse of hours so much blood only will be found as can be accounted for by the flow that took place during the operation

Medical Journal of Australia, Sydney

May 12 I No 19

22 Personal Experiences and Clinical Observations with third Australian General Hospital Lemnos and Egypt H J Stewart—p 393
23 Surgery of Ruptured Bladder C E Todd—p 399
24 Case of Cesarean Section under Rectal Anesthesia A E Panting—p 399

Practitioner, London

June XCVIII No 6

25 Rubella or German Measles C R Box—p 501
26 *Surgeon and Spleen, Eight Cases of Splenectomy G G Turner—p 511
27 Recent Work on Urinary Surgery J W T Walker—p 525
28 Recent Work on Diseases of Heart C W Chapman—p 543
29 Retrospect of Otology, 1916 M Yearsley—p 557
30 Surgery of Fractures E M Corner—p 562
31 Treatment of Neuralgia and Neuritis by Ionization and Diathermy J McGinn—p 565
32 New Method (Forcible Passive Motion) for Treatment of Immobile or Stiff Shoulder Joints W J Smyth—p 575
33 *Case of Septic Pneumonia in Puerperium S Sheill—p 577
34 *Treatment of Bronchopneumonia in Children J E Measham—p 581

26 **Splenectomy**—In two of the cases reported by Turner splenectomy was performed for injury and both patients died, in six cases the spleen was removed for disease and these six patients recovered and were known to be alive and well months or years afterward The types of disease for which the operation was performed were wandering spleen, wandering spleen with twisted pedicle, splenic anemia, splenic anemia (?) of infants, splenic anemia with recurring jaundice, Banti's disease Turner warns that splenectomy must always be looked on with the greatest respect A wandering spleen, with a long pedicle, allowing it to be brought out of the abdomen is easily removed, but a spleen that has never left its secluded position, and is perhaps surrounded with vascular adhesions, is a much more difficult matter with which to deal, and one that may tax the resource of the operator very sorely In the immediate after-history of these cases, Turner draws attention to the frequent occurrence of a little leftsided basal pleurisy This has been present in nearly all his patients, and has come on about the fourth day It soon clears up, and has not given rise to more than temporary inconvenience Turner also calls attention to the fact that some condition in which the spleen is

enlarged may account for otherwise obscure hemorrhage, whether from the gastro-intestinal tract or the urinary system The presence of some such disease may be masked, until perhaps severe postoperative hemorrhage prompts a systematic search for its cause A routine examination of the blood ought to be made in all cases before operation

33 **Fatal Septic Pneumonia in Puerperium**—In Scheill's case there was a perineal tear requiring two sutures of silkworm gut and these were removed on the seventh day good union resulting The patient got up on the ninth day feeling very well except for a tender spot on the right breast The same evening her temperature rose to 102 F the first rise of temperature during her puerperium Sheill kept her in bed and ordered antiseptic wet dressings, while the inflamed spot increased in size toward the nipple On the eleventh day while applying suction to the whole breast by a Bier s apparatus 1 or 2 drops of pus were drawn from a milk duct The next day Sheill opened the breast under nitrous oxid anesthesia and evacuated a small amount of pus and altered milk, the incision was explored digitally to make certain that no pus pockets remained unbroken Her temperature did not fall to normal after the operation but instead rose in two days to 104 F although the breast was doing very well except that the edema did not subside Suspicious of her lungs Sheill made an examination of them and found well marked patchy signs of pneumonia A few hours later the diagnosis of septic pneumonia was confirmed Six days after the opening of the abscess and the eighteenth day of her puerperium she died of acute septic double pneumonia

34 **Treatment of Bronchopneumonia in Children**—The method of treatment which Measham has adopted in seventeen cases is as follows The child s chest is enveloped in a light Gamgee jacket and over this a pair of woolen combinations are worn The bed is placed in a part of the room free from draughts and not more than the usual amount of bedclothes is used A fire is kept constantly burning and the window always open The child is encouraged to take frequent sips of cold water No medicines are given by the mouth but a subcutaneous injection of quinin hydrochlorid is given morning and evening A solution is prepared in which 1 grain of quinin salt is dissolved in 10 minims of water and the dosage is as follows For a child under 6 months 5 minims for a child under 1 year 10 minims, for a child under 2 years 15 minims for a child under 2 years 20 minims In a series of seventeen cases there were two deaths one of which was due to Bright s disease, the other to bronchopneumonia The fatal case was not seen until the seventh day and had had its chances of recovery lost by improper treatment.

Archives des Maladies du Cœur, etc, Paris

April X No 4 pp 145 208

35 Case of Aneurysm of Left Auricle as Explaining Mechanism of Pulsus Bigeminus R. Lutembacher—p 145
36 *Disturbances in the Circulation Accompanying Traumatic Reflex Paralysis or Contracture J Heitz.—p 161
37 Preparation of Strophanthus Gratus—Ouabain—in Treatment of Cardiac Insufficiency H Vaquez and R. Lutembacher—p 197

36 **Reflex Paralysis or Contracture**—Heitz refers in particular to the disturbances in the circulation accompanying the paralysis or contracture following transfixion of a limb by a projectile, or a severe contusion The absence of the reaction of degeneration and the existence of symptoms especially vasomotor which cannot be reproduced by volition, thus excluding hysteria are special features of these cases, and sustain the assumption that the paralysis or contracture is of reflex origin Babinski and Froment have recently published a monograph on the subject and Heitz reproduces five of their most typical illustrations and gives five tables showing the modifications in the circulation in the part involved The local temperature is generally below normal or transiently above, and the limb is redder or bluer than normal, and there may be local hyperhidrosis The topography of these vasomotor disturbances, their fluctuations, especially under the influence of the external temperature, their possible extension to the sound mate and their analogy with those observed with certain central lesions—all point to some reflex excitation of the bulbomedullary centers and the centers in the ganglia of the sympathetic The logical treatment is to act on the muscular trouble by way of the vasomotors, seeking to elicit and maintain intense vasodilatation This can be realized with hot baths superheated air or electric light baths or diathermy, supplemented by massage, local mobilization and reeducation Psychotherapy may be needed to eliminate any associated manifestations of hysteria Excision of hampering cicatricial tissue is useful Periarterial sympathectomy gives good results by the vasodilatation which it induces at first In two or three weeks as the effect begins to subside it can be revived by keeping the part extra warm A bath of paraffin melted at 60 C has proved excellent for this The paraffin in contact with the skin solidifies, forming a protecting cover, so that the heat can be tolerated After thirty or forty minutes the member with its adherent paraffin is wrapped in cotton

Archives des Maladies de l'Appareil Digestif, etc, Paris

May IX No 4 pp 169 228

38 Palpation of Pylorus Region A Mathieu—p 169
39 Roentgen Diagnosis of Cancer of the Large Intestine R Bensaude and G Guenaux—p 179 Concluded
40 Lymphatic Leukemia with Intestinal Symptoms A F Hurst (London)—p 221

38 **Palpation of Pylorus Region**—Mathieu has been studying for years the findings when the fingers are drawn perpendicularly over the colon and over a large cord occasionally discovered in the epigastrium Roentgenoscopy has revealed this cord to be the antrum of the pylorus It may be tender in patients who have had symptoms suggesting an ulcer in the stomach or duodenum or when there is much gastroptosis The indurated pylorus is usually hidden behind the liver but it sometimes can be palpated at the close of inspiration as the subject stands When the stomach is very long, the pylorus may lie to the left of the median line but when there is much dilatation it is usually to the right In five cases in which the pylorus lay to the left of the median line a laparotomy showed an ulcer close to the pylorus The prepyloric cord was found tender in a number of persons free from any indications of ulceration at the time or before, and they have never developed such during the years since Is it possible that irritation of the celiac or solar plexus, augmented by gastroptosis is sufficient alone to induce the painful prepyloric cord? The tender contracted prepyloric cord might be the first sign of cancer, but he has never encountered a case of the kind although he has long been seeking for one Induration of the pylorus differs from the typical prepyloric cord in that it does not appear and disappear but is fixed, and is usually accompanied by signs of retention and stasis in the stomach When the induration is due to ulcer or cancer, the pylorus may be found in the left of the epigastric region It may be fixed and immovable or it may slide down to the right when the stomach is full, returning to its position on the left as the stomach is emptied

39 **Roentgen Diagnosis of Cancer of the Large Intestine**—The conclusions of this long analysis of thirty cases are that the Roentgen rays may locate the lesion but that they are unable to specify its nature Gaps in the shadow merely indicate circumscribed induration of the wall of the bowel, this may be due to ileocecal tuberculosis or ulcerative colitis as well as to cancer Bensaude and Guenaux have noticed, however that with the latter the shadow may spread out in the shape of the flame of a candle They have never seen this except with cancer verified by operation (transverse colon) Another typical finding with cancer is when the shadow narrows to a small bridge between two broad shadows, looking as if a chunk had been gouged out on each side The shadows cast by overlapping loops may hide a typical gap or narrowing in the shadow, this is particularly liable with the sigmoid flexure. They comment on other difficulties with radiologic exploration of the large intestine, but add that it may give valuable information in regard to the functioning of an anastomosis, warning of recurrence and demonstrating postoperative adhesions and the advisability of further intervention In four of the thirty cases on which the article is based, the cancer was discovered in such an

early stage that its eradication was possible A shadow of the rectum, dotted with light spots, was obtained in a case of polyposis of the rectum

Bulletin de l'Académie de Médecine, Paris

May 15 LXXVII, No 20, pp 599 653

41 *The Depopulation of France C Richet and others —p 604
42 *Quininized Serum in Treatment of Malaria G Hayem —p 635
43 Extraction of Projectiles from Posterior Aspect of the Heart R Le Fort —p 645
44 *Importance of Vitality of First Teeth for Physiologic Dentition (Resorption radiculaire des dents de lait) Luciani —p 647
45 Hair Ball in Stomach of Girl of Four A Broca —p 650

41 **The Depopulation of France**—This committee report presents the present status of the outlook for the natality of France, and urges the adoption of resolutions prohibiting birth-control propaganda, and proposes taxation of the childless to provide pensions for families with children, with stricter enforcement of the laws against induced abortion The discussion is to be continued

42 **Treatment of Malaria.**—Hayem gives the history of intravenous medication It seems to have been suggested first in Scotland in 1832 It was first applied in treatment of cholera, in 1855, and popularized by Baccelli in 1890 He warns that men returning from Macedonia or elsewhere with malaria should not be sent to localities where it is known that anopheles abound Careful selection of the places for their convalescence is important to refrain from founding new foci of infection

44 **Absorption of the Roots of the First Teeth**—In examining large numbers of "milk teeth," Luciani noticed that the normal absorption of the roots occurred completely only when the pulp of the tooth was in normal condition The physiologic integrity of the tooth is indispensable, he declares, in preparation for the normal process of second dentition All his evidence proclaims the importance of preserving the vitality of the pulp of the first teeth until they are ready to drop off from absorption of their roots

Journal de Chirurgie, Paris

XIV No 1 pp 1 112

46 *Treatment of Persisting Fistula with War Wounds of Bones C Dujarier and A Desjardins —p 1
47 Apparatus for Immobilization of Compound Fracture of the Leg R Bonneau —p 12

46 **Persisting Fistulas with Osteomyelitis from War Wounds**—Dujarier and Desjardins advocate a special center to which these interminable fistula cases can be sent for specialist treatment Their success with such cases has practically realized a center of the kind, as they report 80 per cent cured by their operative measures in sixty-nine cases The interval between the war wound and their intervention was from ten to twenty-one months in most of the cases and in none was less than four months The cure after their intervention was complete in from three weeks to six months, averaging from two to four months In the few cases of failure some cause was discovered later in nearly every instance, a scrap of cloth, a sequester or an overlooked focus of osteitis

The abstract department of this *Journal de Chirurgie* fills eighty-eight pages, and illustrations accompany many of the summaries The indexing of articles interesting the surgeon in international literature fills an additional thirty-six pages

Journal de Médecine de Bordeaux

May, LXXXVIII No 6 pp 101 120

48 Heliotherapy at Seashore Sanatorium in Southern France (La Fondation Wallerstein) C Lasserre —p 103
49 *Differential Diagnosis of Purulent Pleurisy and Abscess in the Liver L Moreau —p 109
50 Localization of Projectiles Barozzi —p 113
51 Zinc Dressing in Ambulant Treatment of Leg Ulcers Charron —p 115

49 **Differential Diagnosis of Pleurisy and Liver Abscess**—Moreau describes a case in which the symptoms were ascribed to an assumed abscess in the liver, but they persisted after the operation on the liver Necropsy revealed that the man had succumbed to a purulent pleurisy which had burrowed downward and simulated a purulent process in the liver The symptoms of the two are practically identical, except that the bulging of the wall is lower with the liver trouble The area of dulness is dome shaped with the latter, and more of a parabola outline with the pleurisy, unless congestion of the lung modifies the outline The urine may contain more urates in pleurisy while they are much reduced with inflammation of the liver Puncture is the most reliable differentiating measure, but instructive findings have been obtained with the deviation of complement test, applied with an antigen made from pus from the liver A positive reaction has been obtained in several cases of liver abscess while the findings were constantly negative with simple amebic dysentery The pus with purulent pleurisy does not yield an active antigen Roentgenoscopy is also instructive

Journal de Radiologie et d'Electrologie, Paris

March April, III No 8 pp 497 544

52 Radiologic Differential Diagnosis of Lesions in Lower Duodenum J T Case (Battle Creek) —p 497
53 *Radiography of the Skull and Its Interpretation C Villandre —p 507
54 *Rational Treatment of Cancer T Nogier —p 515
55 Intensive Reeducation in Treatment of Phenomena of Hysteria. L Delherm —p 531
56 Radioscopic Determination of Depth of Projectiles in the Tissues P Aime —p 533

53 **Radiography of the Skull**—Villandre has been studying on prepared skulls or parts of skulls the solution of certain problems raised during interpretation of numerous radiograms of skull wounds The brain fits exactly into the skull, and knowledge of the skeletal points throws light on the conformation of the brain and its various parts He took radiograms of the brains with lead threads placed to outline the corpus callosum, the ventricles, etc A composite outline picture thus obtained is placed on the radiographic plate By this means the shadow cast by the projectile fits into the proper region of the skull

54 **Radiotherapy plus Operation in Treatment of Cancer**—Nogier says he has been appalled at the histologic findings of cancer cells scattered through the adjoining tissues after apparently complete excision of cancers Particularly in the breast, improved technic has revealed cells sown through the tissue far back of the primary tumor They are not seen nor felt, and lie latent till after the operation This arouses them, and we have recurrence of the cancer For this and other reasons he advocates broad and intensive radiotherapy before the operation, preoperative instead of postoperative Roentgen or radium exposures This he insists will prove successful beyond anything yet realized to date Working with Regaud, he has conclusively demonstrated, he reiterates, that it is possible to give enormous doses of filtered Roentgen rays, leaving the skin intact They expose the cancer first, then the adjoining regions, and especially the lymph glands which are ordinarily invaded The operation should be as early as possible, removing all the microscopically evident malignant tissue The scattered cancer cells lose all power for reproduction under the exposures, and if any embolism occurs during the following operation the embolus is sterile and metastasis is not entailed The cells in the depths having lost their power of reproduction, die off sooner or later and are absorbed This absorption of cancer cells serves as an immunizing process All the evidence therefore, he concludes, is overwhelmingly in favor of radiotherapy followed by excision as the logical treatment for cancer

Paris Médical

May 19 VII No 20, pp 405-420

57 *Treatment of Abdominal Wounds at Advanced Posts A Schwartz —p 406
58 *Campaign Diarrhea A Hanns —p 408
59 Dangers of Intravenous Injections by the Inexperienced (Escarre du pli du coude par injection arsenicale concentrée) G Milian —p 412
60 Apparatus to Record Excursions of the Knee. (Nouveau goniometre médical) L Alquier —p 413
61 Volumetric Dosage of Sulphates Vansteenberghe and L. Bauzil —p 414
62 Tuberculous Origin of Nodular Erythema R A Gutmann —p 416

57 **Abdominal War Wounds**—Schwartz states that the present 30 or 40 per cent recoveries after laparotomy for abdominal wounds is a marvellous proportion when we consider the extreme rarity of a spontaneous cure of such wounds with lesions of the viscera, especially of the gastro intestinal canal

58 **Campaign Diarrhea**—When entire regiments are taken with diarrhea for a few days without special characteristics, Hanns thinks that the food is to be incriminated The exercise and out-of-door life keep the men hungry and they overeat Then some chilling at night proves the last straw The reason why the diarrhea develops in epidemic form is because the opportunities for overeating occur to all alike ripening of fruits etc There were never any complications in the hundreds of cases he has encountered

Presse Médicale, Paris

May XXI No 25 pp 249 264

63 Significance of Uremia in Heart Disease (L azotemie chez les cardiaques) O Josue and M Parturier —p 249
64 The Question of Time in War Surgery H Lorin —p 251
65 Radium in Treatment of Sequels of War Wounds P Degrais and A Bellot —p 253
66 Current Tests for Blood Coagulability L. Binet —p 255

May 10 No 26 pp 265 272

67 The Life Work of Louis Landouzy M Letulle —p 265
68 Malaria from the Therapeutic Standpoint R A Gutmann —p 267

63 **Uremia in Heart Disease**—Josue and Parturier report experiences which confirm that azotemia may be observed in heart disease when the kidneys are still intact but are secreting abnormally small amounts of urine They insist that with oliguria Ambard s constant is not a reliable criterion of the functional capacity of the kidneys Even when the kidneys are slightly pathologic relative oliguria may falsify the findings Oliguria without azotemia may be observed when there is asystoly with considerable reduction in the urea-producing functioning of the liver When diuresis sets in the urea content of the blood drops still lower Then if the Ambard constant is normal this denotes that the urea-excreting function of the kidneys is intact but if the constant is above normal this denotes that the kidneys are impaired Reduction of the urea content of the blood shows that the liver is impaired Uremia due to oliguria may occur in various morbid states and persons with heart disease are peculiarly predisposed to it the oliguria itself being the direct consequence of the weakness of the heart muscle Hence a high urea content in the blood does not contraindicate digitalis in adequate doses With asystoly it is imperative to secure a more copious flow of urine.

Progres Medical, Paris

May 19 XXXII No 20 pp 163 170

69 *Experimental Research on Food Value of Cornmeal (A propos du pain de guerre) E Weill and G Mouriquand —p 163
70 War Wounds of the Eyeball and Their Treatment M Bourdier —p 166 Continuation

69 **Cornmeal and Its Food Value**—The recent experimental research on pigeons here described confirms the assumption that removal of hulls deprives grains of substances of vital importance Pigeons fed on bolted cornmeal (*maïs décortiqué*) developed paraplegia of the beriberi type with profound dystrophy of the skin the feathers dropping out in the course of a few days The paraplegia developed in thirteen ten or five days of feeding with fine cornmeal such as is generally used on the table The dystrophy of the skin was also marked in rabbits and cats fed on vegetables or meats sterilized at 120 C (248 F) They lost their fur as also rabbits fed exclusively on fine white bread. The research reported on the other hand confirms the high and satisfactory food value of whole-grain cornmeal Pigeons kept 240 days on this alone thrived in every way None of the pigeons fed with other grains seemed as vigorous as those on the whole-grain cornmeal This was proportionately true also of the pigeons and controls kept on inadequate quantities of cornmeal

Correspondenz-Blatt für Schweizer Aerzte, Basel

May 19 XLVII No 20 pp 625 656

71 Metal Albumin Preparation for Diagnosis of Pregnancy K. Kottmann —p 625
72 *Index for Coagulating Property of the Blood (Methode de Bestimmung der Gerinnungsvalenz des Blutes) A Fonio and S Schulsinger —p 639

72 **Index of Coagulating Power of the Blood**—Fonio and Schulsinger relate that when blood contains some substance which impedes its coagulation, then addition of another coagulation-impeding substance will naturally check coagulation still further The amount of the second substance required to arrest coagulation completely can thus serve as an index of the coagulation value of the blood They selected magnesium sulphate for the test substance They fill a set of tubes with equal amounts of solutions of the magnesium sulphate of varying concentration and add to each the same quantity of blood After twenty-four hours the tube in which complete coagulation first occurs is the index of the coagulation value The set of tubes must be kept under sheets of moist filter paper with a glass lid over them He calls the set of tubes for the purpose the Coagulovimeter The tubes contain the reagent in concentrations of 08 09, 1, 1.2 14 16 18, 2 25 3 35 and 4 per cent and 10 drops of blood are added to each tilting the stand until the contents of the tubes are well mixed

Gazzetta degli Ospedali e delle Cliniche, Milan

April 19 XXXVIII No 31 pp 481-496

75 *Mercury Oxycyanid in Abortive Treatment of Gonorrhea S

April 22 No 32 pp 497 512

74 The Clinical Importance of the Organic Soil E Maragliano —p 497
75 *Mercury Oxycyanid in Abortive Treatment of Gonorrhea S Colombino —p 499

75 **Mercury Oxycyanid in Abortive Treatment of Gonorrhea**—Colombino has discarded silver nitrate in abortive treatment of gonorrhea as it is irritating to the urethral mucosa Potassium permanganate also is of little use he thinks in the early stages, although valuable in the second or third week Mercury oxycyanid on the other hand is effectual and nonirritating as he has demonstrated in over 100 cases He irrigates the urethra with a tepid one per thousand solution the first day then repeats the rinsing with a 0 5 per cent solution morning and evening thereafter for two days, then once a day The cure is usually complete in nine or ten days, the gonococci generally disappear by the third day This method is indicated especially when the gonococci are restricted to the anterior urethra and not more than forty-eight hours have elapsed since the patient noted the first symptoms Repose is good but not indispensable with this drug but excitement stimulants and heavy work should be avoided

Policlinico, Rome

May 20 XXII No 21 pp 669-696

76 *War Wounds which Predispose to Gangrene on account of Injury of Vessels G Baggio —p 669
77 *Hygiene and Prophylaxis of Cholera Typhoid and Typhus among the Troops A Capogrossi —p 672
78 Treatment of Malaria in the Troops N Pende —p 679

May 27 No 22 pp 697 724

79 *Factitious Affections (Le autolesioni nella vita militare.) A. Ascarelli —p 697 (L ittero procurato da ingestione di acido picrico) G Masnata —p 701 P Zannelli —p 707 (Diagnosi urologica degli itteri da ingestione di acido picrico) O Paleani —p 711 (Diatesi emorragica e cellulo dermite autocontusiva) M Nissim —p 712 (Dermatite da causa irritante esterna) M Caruccio —p 716 P Sabella —p 717

76 **Wounds Predisposing to Gangrene**—Baggio calls attention to the war wounds of the thigh in which the injury of vessels predisposes to septic gangrene although the vascular injuries may be so slight that they may be overlooked by the surgeon The tissues may be able to defend themselves as long as the circulation keeps active He has seen gas gangrene develop after a tourniquet had been applied to arrest secondary hemorrhage, a week or more after the wound He warns that wounds of the anterior-interior aspect of the thigh are particularly liable to develop gangrene and

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

April 28, I, No 17, pp 1337 1432

110 *Epidemic Meningitis in Young Children R Korteweg —p 1340
111 White Bread or Whole Wheat Bread C Eijkman —p 1352
112 Life Expectancy in South Africa (De levensduur, in Zuid Afrika) C Pijper —p 1358
113 Favorable Course through Four Years to Date of Dementia Praecox under Antisyphilitic Treatment J G Drossaers —p 1363

110 **Epidemic Meningitis in Young Children and Silent Epidemics in Adults**—Korteweg is assistant professor of children's diseases at the University of Groningen, and he here compares the percentage of epidemic meningitis at different ages as reported in various countries The percentage in young children seems to be always higher in lands where physicians have had more experience with this disease and thus recognize it more readily In the Oppeln epidemic of 2,916 cases in 1905, 71 per cent were in children under 8, over 25 per cent were under 2 In the total 225 reported cases in the Netherlands, 1916, only 26 per cent. were in children under 5 Over 31 per cent occurred between 19 and 29, the army medical officers being skilled in its detection He emphasizes that children with meningitis do not spread the disease themselves, school epidemics are unknown It is probable that when a second child in a family contracts the disease, it acquired the infection from some intermediate adult host Korteweg reported a case last year in which only one of a group of five coccus bearers had been in direct contact with a case of the disease The coccus bearers form a chain, some of them may lose their cocci as the chain lengthens This chain of healthy bearers may be called a silent epidemic until it reaches some susceptible person, then the disease flares up As children are particularly susceptible, they serve as an index of the meningococcus status at the moment Every case in a child should thus warn of a silent epidemic of bearers

Differentiation in children is particularly difficult on account of the frequent absence in them of the pathognomonic symptoms Labial herpes, he says, is never seen in children under 3 In children under 3, Göppert in his hundreds of cases never found stiffness of the back of the neck during the first week in 63 per cent. and even by the fourth week 21 per cent still showed no sign of it Progulski in his fifteen cases in infants found no signs of it in the first two weeks Kernig's sign is scarcely more frequent An acute onset is also rare in young children, and headache also seems rare and mild, children with epidemic meningitis may sit up in bed and play if only they are left in peace But they scream at any attempt to take them up or move them Symptoms of enteritis are also common When they develop along with general hyperesthesia, meningitis should be suspected, especially if the fontanels are taut Vomiting is rare in young infants

Korteweg describes a case in a 7 weeks babe that took the breast well but had been whimpering for three days There was no vomiting but some diarrhea, and the fontanels bulged There was no Kernig sign but the child cried when touched, and the throat was slightly red The fifth day there was a little stiffness at the back of the neck and lumbar puncture revealed meningococci in the fluid Necropsy the tenth day showed thick pus at the base and in the fourth ventricle In such cases the retention of consciousness is remarkable There is little fever but the pulse is accelerated Sometimes the course resembles fatal hydrocephalus, sometimes it is abortive but lumbar puncture gives the clue In the Oppeln experience, 89 per cent died of the 229 infants less than a year old Even under serotherapy Flexner has reported a mortality of 50 per cent in infants

Korteweg planned to make a puncture opening in both the lateral ventricle and lumbar region in a case in which lumbar puncture evacuated only 5 c c of very turbid fluid, the communication being evidently interrupted The child of 8 months had been sick for two weeks before it had been brought to the hospital Its mother was received along with it, to keep up the breast-milk feeding He introduced the puncture needle through the coronal suture and at a depth of 5 cm evacuated 40 c c of turbid fluid and injected 10 c c of serum in its place The child opened its eyes afterward and had no further vomiting The ventricle puncture was repeated eight days in succession As the condition persisted grave, he then punctured both lateral ventricles and rinsed them out with Ringer's fluid, using 120 c c in all Large quantities of pus were thus cleared out and improvement was manifest as also after repeating the rinsing the next day The third day no apparent benefit followed and Korteweg refrained from further intervention, the child dying two days later There had been little hope at any time

In a second similar case the 6 months babe had been sick for three weeks with fever, but no vomiting or diarrhea, the head thrown backward Meningococci were then found in the lumbar fluid, and Korteweg left the lumbar puncture needle in place and introduced 30 c c of blue tinted Ringer's fluid into the right lateral ventricle, gaging it to correspond to the fluid dripping from the lumbar needle This fluid soon showed the blue tint He then injected 10 c c of horse antimeningococcus serum into the ventricle A total of 62 c c of fluid was evacuated and 40 c c introduced Toward the end of the procedure the type of the respiration changed, possibly from irritation of the respiration center on the floor of the fourth ventricle under the influence of the phenol in the antiserum Lumbar puncture followed the next day as the fontanels were bulging Two days later the ventricle-spinal rinsing was applied again, but the communication was evidently interrupted so he injected 10 c c of serum into the spinal canal and withdrew fluid from the ventricle until the pressure was normal The ventricle was punctured again the next day to relieve the pressure Improvement was evident, but five days later the temperature ran up, and 35 c c still turbid fluid was evacuated by lumbar puncture and 10 c c sheep antiserum injected The next day the ventriculolumbar rinsing was repeated for the last time, and the child was dismissed cured after a month's convalescence In the two other cases of epidemic meningitis in young children (6 months and nearly 3 years old) the younger died and the other recovered Three weeks and four weeks had elapsed before the meningitis had been suspected The symptoms were vomiting, diarrhea and fever, the head bent backward, but no convulsions in one case, and high fever, vomiting and diarrhea in the other The meningococci in this latter case had probably induced a general sepsis at first and did not localize on the meninges until the end of the month His five meningitis infant cases were all breast fed When bottle babies are affected they may succumb to the enteritis before the actual meningitis symptoms manifest themselves

Ugeskrift for Læger, Copenhagen

May 17 LXXIX No 20 pp 771 812

114 *Roentgen Treatment of Brain Tumors S Nordentoft —p 771 O Gulstad —p 775

114 **Roentgen Treatment of Brain Tumors**—Nordentoft has now a record of twelve cases of brain tumors in which Roentgen treatment has been applied and he reports complete success in three instances The improvement was most marked in the better vision Rapidly developing tumors are more liable to give good results than the more slowly growing Symptoms from stasis and compression subside as the cause is removed The loss of hair over the region was not permanent in any instance The cure has persisted to date, the longest interval being a year and a half Choked disk retrogressed in some of the cases, in one after it had lasted for three years He advises a tentative course of treatment as for syphilis before beginning the Roentgen treatment, and urges that the latter should always be tried before attempting an operation Gulstad reports the details of the twelve cases with the findings on which the diagnosis of a brain tumor was based Two of the twelve patients proved refractory, necropsy in one showed a very old fibrous tumor In eight the Roentgen treatment gave favorable results, in three cases earning capacity was restored It is emphasized that these experiences seem to prove that the Roentgen rays can be applied to the skull without injury to the brain and that the tumors can be modified through the skull wall

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXIX, No 3 CHICAGO, ILLINOIS JULY 21, 1917

PROBLEM OF UNNECESSARY OPERATIONS AND OF INCOMPETENT SURGEONS *

ARTHUR DEAN BEVAN, M D

CHICAGO

I desire to present briefly an outline of a problem which I believe confronts the medical profession and which demands careful investigation and action I refer to the problem of bad surgical therapy, of unnecessary surgical operations and of incompetent surgeons In my work as chairman of the Council on Medical Education, and in my position as teacher of surgery and as attending surgeon in a teaching hospital, I have during the last ten years been much impressed with the fact that there does exist this definite problem which the American medical profession should face My conception is that this problem should not be attacked by any individual, or by any local or special medical society, but should be investigated by the organized medical profession of the entire country through the council or committee best suited to do this work This problem should be attacked without any sensationalism, certainly without any unnecessary publicity, and should be looked on as a piece of housecleaning that should be done by the American Medical Association In order to bring this subject clearly before the profession, let me attempt to draw a picture of the conditions as I believe them to exist today

First, let me state that within the last thirty years, by the advances made in the underlying medical sciences and in the sciences of diagnosis and therapy, clinical medicine and clinical surgery have been placed on a scientific basis, and that owing to these advances it is possible today to place the practice of medicine and the practice of surgery on a thoroughly scientific basis It is clearly the desire of the organized medical profession of this country, the American Medical Association, to place medical education and the practice of medicine and surgery on a scientific basis, and in the last fifteen years this organization has made wonderful strides in this direction I believe that the American Medical Association has done more in the last fifteen years to improve the standards of medical education and medical practice than has been accomplished before by any organized group of professional men in any country It is clearly the desire and purpose of the American medical profession to secure for the people of this country all of the benefits and possibilities that the modern science of medicine can afford I believe not only that this is the object of the American Medical Association as an organization, but also that the great majority of the members of this organization are individually doing their best to accomplish these desired results

In the rapid evolution of medicine into a science, certain glaring defects in medical practice became evident Among these has stood out particularly the weakness of drug therapy of the old time practice The American Medical Association has recognized this weakness fully and is doing more probably than any medical organization in the world through its Council on Pharmacology and Chemistry to place drug therapy on a sound, scientific basis No such organized effort, however, has as yet been made to investigate the existing status of surgical therapy to point out its weakness, and to place it on a thoroughly acceptable basis In the last fifteen or twenty years the practice of medicine has become more and more surgical, new surgical fields one after the other have been explored and carefully cultivated, and new operative procedures have been developed and perfected As a result, thousands and hundreds of thousands of people have been greatly benefited by properly indicated and properly performed operations in appendicitis, peritonitis, gallstone disease, lesions of the stomach and kidneys, and in many other fields The amount of surgical operating has increased manyfold and will continue to increase because there are thousands of people who still lack the benefits that could be given to them by modern surgical therapy

This great increase in surgical operations and operating surgeons has brought with it this new problem of unnecessary operations and of incompetent surgeons I should like to make perfectly clear in this presentation that I believe that the great majority of operating surgeons in this country are competent, and that the vast proportion of operations performed are necessary and desirable On the other hand, those who are in touch actively with surgical therapy, who see a large number of surgical cases and who come in contact with a large number of men doing surgical operations cannot but be impressed with the fact that there is a certain considerable number of operations being performed in this country that are unnecessary and unwarranted, and that there is a considerable number of men operating who are not qualified to do the work

My impression is that this condition is due to three causes, ignorance, dishonesty and bad judgment, sometimes bad judgment amounting almost to an obsession, legally when a surgeon undertakes the treatment of a case he makes a contract with the patient which, although not written, is in the eyes of the law just as binding, and in that contract he agrees to give the

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* Read before the Section on Surgery General and Abdominal at the Sixty Eighth Annual Session of the American Medical Association, New York June, 1917

patient the benefit of the knowledge possessed by the "professors" of the science and art of medicine and surgery in the place and at the time the services are rendered. He agrees also to give to the patient the benefit of his best judgment and due diligence, and the benefit of established and accepted methods of practice. As far as honesty is concerned, a good rule for a surgeon to follow in his practice is the golden rule. He should never do an operation on a patient which he would not want to have done on himself under the same conditions. As far as good judgment, on the one hand, and surgical tangents and obsessions, on the other, are concerned, it is necessary for us all to remember that the practice of surgery should be the practice of common sense. The three absolutely essential characteristics of the safe surgeon are honesty, good judgment and scientific training.

What shall be done by the medical profession about the unnecessary and unwarranted surgical operations done as a result of ignorance in unattached and uncontrolled hospitals by poorly trained men? What shall be done about the unnecessary operations done by dishonest men for a fee, the unnecessary appendix operations done for imaginary appendicitis, the unnecessary fixations of the kidney, the unnecessary amputations of the breast done for benign or imaginary breast tumors, the unnecessary operations on female genitals, on the tonsils, on the gallbladder, etc.? What shall be done about the operations that are due to lack of good judgment or to misguided enthusiasm, the unnecessary operations on fractures, the fantastic operations for intestinal stasis without gross pathology, operations for supposed insufficiency of the ileocecal valve based on misinterpreted Roentgen evidence, intestinal anastomosis or resections of the large intestine for the cure of epilepsy? These are problems which we should meet frankly, investigate fully and find means to correct, and this should be done by some properly qualified instrument of the American Medical Association, possibly by creating a committee or council to do with surgical therapy what the Council on Pharmacy and Chemistry has done and is doing with drug therapy. I believe that this problem should be investigated and if possible corrected by the organized medical profession, that this work should be done by and within the profession itself in the interests of the profession and in the interests of the community. This problem of unnecessary operations and incompetent surgeons is a serious matter both for the medical profession and for the public. Its existence should be frankly admitted and steps taken by and within the profession to reduce bad surgical therapy to a minimum.

Specifically, how is this to be accomplished? The answer has seemed to me in a general way to handle this problem of surgical therapy as the American Medical Association has handled and is handling the problem of medical therapy, that is, by a committee or council on surgical therapy, the business of which will be to analyze and report on these problems from time to time as they arise.

There are at least two large problems involved in this whole matter, (1) that of unnecessary and unwarranted operations, and (2) that of operations done by incompetent men.

1. In a general way it is evident that one of the best means of combating the evil of unnecessary and unwarranted operations is that of attacking surgical problems as pieces of clinical research, not from a single point of view and not by a single man, but as pieces of joint study from the point of view of the several specialists whose fields are involved in the problem and who may be of service in finding the right solution. Let us say, as an example, the study of so-called intestinal stasis and its surgical therapy. This should be a joint study by the internist, the neurologist, the physiologist, the pathologist, the roentgenologist and the surgeon, and when this is done by a competent group of men there will be little danger of going off on a tangent, and arriving at erroneous conclusions.

2. The problem of operations done by incompetent men is largely an educational, and in a sense also a moral question. The American Medical Association could through such a council as I suggest carry on a propaganda pointing out the necessity of thorough and special training for the men who are to do general surgery or the work in any of the surgical specialties. This would mean at least the graduation from a first class medical school, the serving in a hospital as an intern, and the doing of a certain amount of postgraduate work in surgery, best as assistant to some competent surgeon, before entering independent practice.

Some may say, well, just such a propaganda is already being carried on by the American College of Surgeons. In reply to this I would say that that is not enough. Admirable as the work of the American College of Surgeons may prove to be in the future, it is limited to a comparatively small group of men. We need in solving a great problem of this kind the support of the entire profession, and that can be obtained only from the organized medical profession, which is the American Medical Association.

Because of this fact, I believe that the American Medical Association should undertake the task of establishing in some way educational requirements, including a clinical training sufficiently high to eliminate incompetent surgeons.

I give way to no man in my admiration and respect for the splendid work that is being done today by American surgeons. As a whole, no body of men in any line of human effort is more conscientious, better trained for work, more enthusiastic, more productive, more self-sacrificing or controlled by higher ideals. My paper is not a destructive criticism. It is an effort at constructive criticism. The faults which I have endeavored to point out are small, indeed, when compared with the magnificent whole which represents the accomplishment of American surgery. These faults, however, should be eliminated in the interest of the profession, in the interest of the science of medicine, and in the interest of the public.

122 South Michigan Avenue

ABSTRACT OF DISCUSSION

Dr. James E. Moore, Minneapolis: The importance of the subject we all recognize. We must admit that it is a delicate one. The moment we say we must decide on what is a required operation and a necessary one, and what is an unnecessary one, the question naturally arises, who is to be the judge? Who is to say such an operation is necessary and such another one is not necessary? Dr. Bevan very aptly suggests that this organization take the matter in hand and establish a standard that shall govern us all. It is up to us as a profession to establish this standard because if we do not, the laity will take it in hand. They already begin to realize that they have been subject to the machinations of dishonest and incompetent men, and they have been the sufferers thereby They are likely to legislate, and when they once begin to have laws spread on our books there will be a lot of vicious legislation enacted, we have had a number of vicious laws brought before our various states within the last year It is up to us to direct legislation In Minnesota we are attempting in our humble way to solve this problem through education We have there established a graduate school In that graduate school we have two branches, one is in Minneapolis on the campus of the university, and the other is in the far-famed Rochester The regents of the University of Minnesota have set aside a certain amount of money that enables us to have a certain number of teaching Fellows whom we are endeavoring to educate as specialists in various lines The Mayo brothers have contributed $1,500 000 to support like fellowships in Rochester, Minn We go about it in this way We say to the profession at large that we have these facilities We select our candidates from all over the world We have Fellows from all over the world We select the best We take each candidate and make a curriculum suited to his particular needs We have no fixed curriculum We find out what a man is short in, if it is anatomy we advise him to take it up, if it is pathology, we direct him to take up pathology So all along the line, and incidentally he is practicing surgery Now I have forgotten the exact number we have in surgery in Minneapolis and Rochester, but it is a goodly number, and we hope to answer this question in this way They agree to stay three years and study to the best of their advantages and we give all the advantanges there are to be had anywhere, both in Rochester and in Minneapolis These men are paid a stipend, so that it is not a rich man's graduate school, the poorest boy in the country can go there. He is paid $500 or $600 the first year on which he can live, $750 the second year, and $1 000 the third year We get these young men to assist us in the teaching in the hospital and various work in the laboratory

I think the strongest answer to this problem is an educational one We do not pride ourselves on being any more honest in Minnesota than elsewhere, we have only the judgment given us but in education we feel that we are particularly strong

Dr. William M Robertson, Warren, Pa You cannot correct errors which are basic by any system of training As a teacher of singing cannot make a voice, a teacher of surgery cannot make a properly balanced intellect What we are trying to do is to educate young men beyond their capacity, which will make a *highbrow'* but not a surgeon You must select your men Competent, honest men are born, not made Institutions of research like that in Minnesota, can select their men and they can be studied in their judgment and mode of thought What Dr Bevan is after is judgmen and honesty and he takes for granted that one can make them which is impossible.

Dr John B Deaver, Philadelphia I endorse the views of Dr Bevan No one is more capable of suggesting the course to pursue under these circumstances than Dr Bevan, who has demonstrated the masterful work he is capable of accomplishing in advancing medical education, therefore, I would make a motion that a committee of ten be appointed to further Dr Bevan s ideas relative to this vital question

[For action on this motion, see minutes of the section]

Dr. Arthur Dean Bevan, Chicago My idea was to do with this problem just what has been done To refer this to a committee of say ten men of wide experience and let them analyze the facts as they are and report back to this body and to the Judicial Council I think it is a real problem, and I think frankly facing this problem is an evidence of the strength of our position, the strength of modern surgery I really believe that something may be done, something can be done, as has been done with drug therapy, if we handle this in an intelligent way, with the backing of the organized profession of the country

Reformers—Utopias are worthless, because they are founded on very limited and probably erroneous estimates of the possibilities of human development.—*Scientific American*

THE AGE AND SEASONAL INCIDENCE AND COMMUNICABILITY OF ACUTE POLIOMYELITIS

AS SHOWN IN THE EPIDEMIC IN NEW YORK CITY IN 1916*

CHARLES HERRMAN, M D
Attending Pediatrician, Lebanon Hospital
NEW YORK

The epidemic of acute poliomyelitis which raged in New York City in 1916 was the largest on record The statistics of the department of health are the most complete and accurate that we have Previous epidemics were not only much smaller, but were studied by individual physicians or groups of physicians, in most cases after the epidemic had subsided The records, therefore, were incomplete By making the disease a reportable one from the beginning of the epidemic, the department succeeded in obtaining valuable data It is true that a certain percentage of mild nonparalytic cases were not recognized and reported, but this percentage remained fairly constant throughout the epidemic, so that it does not interfere with the accuracy of the age and seasonal incidence of the disease, as based on the cases recognized and reported Frost has drawn certain conclusions based on the study of three small epidemics I shall endeavor to show how a study of the figures of the New York epidemic tend to verify some of his conclusions

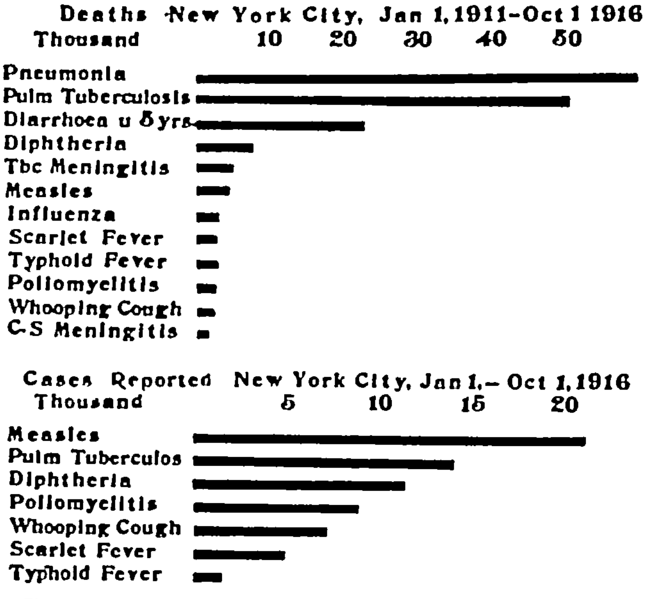

Chart 1.—Deaths New York City, Jan 1 1911 Oct 1 1916 cases reported Jan 1 Oct. 1, 1916

FREQUENCY OF THE DISEASE AS COMPARED WITH THE OTHER COMMUNICABLE DISEASES

In Chart 1, I have represented graphically the deaths from these diseases in New York City during the last five years It will be seen that, as compared with pneumonia and pulmonary tuberculosis, the deaths from poliomyelitis are few, about twenty-six times as many are due to pneumonia and about twenty-two times as many to pulmonary tuberculosis The number of deaths from tuberculous meningitis is important, because this disease also attacks young children almost exclusively (Chart 2), and the mortality is practically 100 per cent As we know definitely the causative agent and the manner in which the disease is spread, it is to a great extent preventable, yet it has received no special attention In the lower part of Chart 1, I have represented the number of cases of some of the other communicable diseases reported during the first nine months of 1916 Some of these diseases were less prevalent than usual, and still although the epidemic of poliomyelitis was the largest on record, the number of cases reported was less than that from measles, pulmonary tuberculosis or diphtheria

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* Read before the joint meeting of the Section on Diseases of Children the Section on Nervous and Mental Diseases and the Section on Orthopedic Surgery at the Sixty Eighth Annual Session of the American Medical Association, New York June, 1917

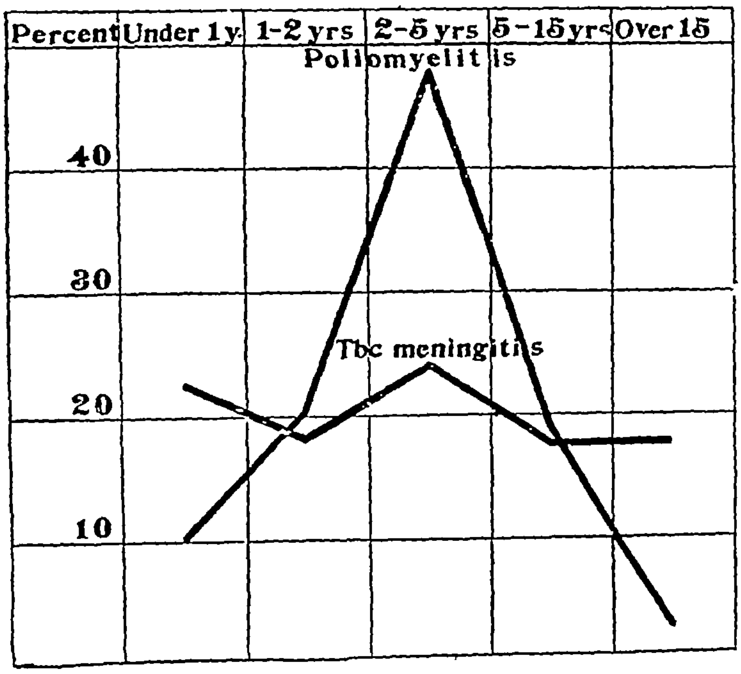

Chart 2—Mortality from poliomyelitis and tuberculous meningitis

AGE INCIDENCE

Chart 3 shows that poliomyelitis is distinctly a disease of early childhood It seems highly probable that infants as well as young children are especially susceptible, for we have all observed cases in the first few weeks of life The reason that the disease is comparatively uncommon in early infancy and most common between 2 and 3 years of age probably lies in the difference in the opportunity for coming in contact with the infectious material Young infants are to a great extent isolated, after 2 years, children are able to run about and mingle freely with others There is therefore a greater opportunity for infection The greater susceptibility of young children is also shown by the fact that in cases of which I have notes, in 80 per cent the patient was the youngest child in the family This susceptibility of the central nervous system of infants and young children is also shown in the age incidence of tuberculous meningitis, Chart 2

SEASONAL INCIDENCE

The epidemic in New York City occurred in late summer (Chart 4), as is the case in all temperate climates In Scandinavia, however, epidemics have extended into the winter months The high incidence in August and September is especially noteworthy, because at this time all the other communicable diseases are at their lowest point Although meteorologic conditions may play a part in producing conditions favorable for the spread of poliomyelitis, contact infection is the controlling factor In Chart 5, the course of the disease is shown in each borough It will be seen that at one time the disease was on the rise in Manhattan, and Queens, while it was declining in Brooklyn, although of course the meteorologic conditions were the same in the three boroughs

We have usually explained the increase of the communicable diseases at certain seasons by assuming, that the climatic conditions were favorable for the growth of the infectious material It is also possible, however, that we are more susceptible at certain times It is well known that the growth of children is not uniform throughout the year Even the increase in weight and height are not synchronous, but each has its season of most marked increase Cushing and Goetsch ascribe hibernation in certain animals to a seasonal physiologic wave of pluriglandular activity It may be that a period of pluriglandular inactivity may likewise render the individual more susceptible to infections of a certain type

TABLE 1—MORBIDITY IN THE EPIDEMICS OF 1907 AND 1916 IN NEW YORK CITY*

Borough	Population, 1916	Morbidity per 10,000	Under 5 Years per 10 000	Percentage Over 9 Years	Morbidity per 10 000 in 1907
Manhattan	2 634 223	9 5	6 43	7 69	1.61
Brooklyn	1,928 432	23 4	15 47	5 15	0.83
Bronx	575,877	10 9	6 78	5.39	
Queens	396 426	30 6	16 64	7 62	
Richmond	97,883	29 1	22 30	5 78	

* Number of cases, 1916, 8,927, deaths, 2,343 death rate, 26 24 per cent

In Chart 4 it will be seen that in the epidemic of 1916, as in other epidemics, there was a rapid increase and a rapid decrease in the number of cases, the curve shows a sudden rise and fall Such a course is found only in a disease which is very communicable, as measles, or in a disease in which carriers are numerous, and spread the disease rapidly The curves of influenza (infectious epidemic catarrh) and lobar pneumonia show (Chart 6) a similar course, whereas the curve of typhoid, in which carriers are comparatively few, is fairly uniform throughout

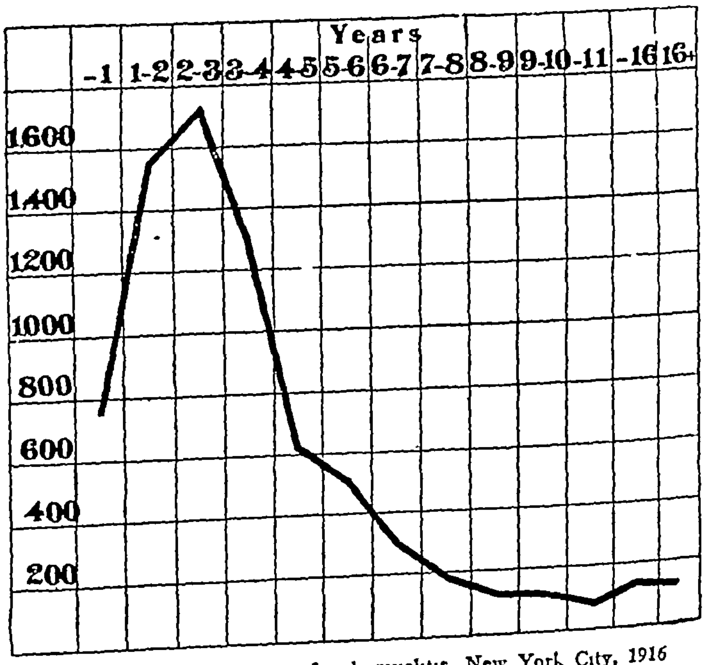

Chart 3—Age incidence of poliomyelitis, New York City, 1916

The epidemic furnishes no evidence that any article of food, more especially milk, was responsible Aside from the fact that the disease occurred in infants exclusively breast fed, only a contaminated food supply that was suddenly stopped could give such a curve, but it would not show progression from one borough to another The evidence in favor of insects as an etiologic factor is still less convincing One of the strongest arguments against this hypothesis is furnished by the age incidence of poliomyelitis (Chart 3) There is no reason why a disease which is spread by insects should attack only infants and young children Yellow fever, typhus and malaria show no such marked predilection

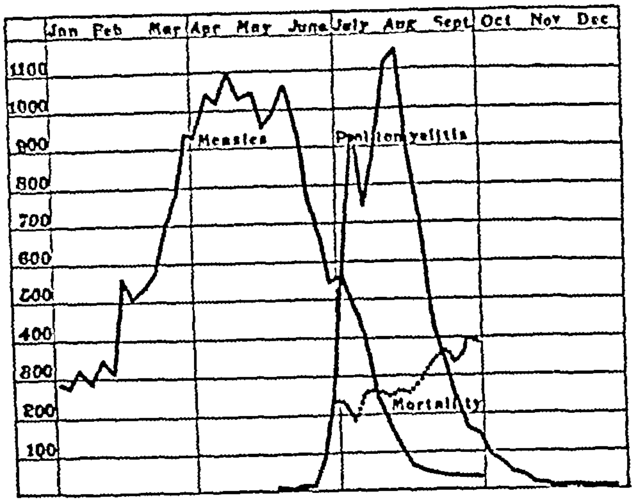

Chart 4 —Seasonal incidence of measles and poliomyelitis

COMMUNICABILITY

The susceptibility of children to poliomyelitis is much less than to the other communicable diseases I have investigated the conditions in 204 families which have come under my observation Of these, 144 were being treated for various forms of paralysis, in the service of Dr Kleinberg, in the orthopedic department of Lebanon Hospital The remainder were seen in my hospital service and in private In these 204 families there were 571 children under 13 years of age, an average of 2 8 children to each family, so that 367 were directly exposed to infection Of these, seven, or about 2 per cent, contracted the disease The reports of the Department of Health of the City of New York, show that 7,000 cases occurred in 6,748 families, that is, there were 252 secondary cases The total number of children in these families is not stated, but if the figures from my own series of cases are used, 2 8 children to each family, there were 12,146 children exposed, and 252 contracted the disease, making a susceptibility of a little over 2 per cent From figures compiled from cases which have come under my own observation, I have found that of children under 13 years of age, not protected by a previous attack, 96 per cent contract measles when exposed, 75 per cent contract whooping cough (only undoubted cases are included), 25 per cent contract scarlet fever, and 20 per cent contract diphtheria

TABLE 2—PERCENTAGE OF AGE INCIDENCE

Ages	Percentage	
	1916	1907
Under 1 year	10 1	8 5
From 1 to 2 years	20.5	20 2
From 2 to 3 years	22.8	24 7
From 3 to 4 years	17 0	14.5
From 4 to 5 years	8 2	8 0
From 5 to 6 years	6.8	3.8
From 6 to 7 years	4.0	2.5
From 7 to 8 years	2 4	1.5
From 8 to 9 years	1 7	1 5
From 9 to 10 years	1 6	1 0
From 10 to 11 years	1 0	0 9
From 11 to 16 years	1 9	1 7
Over 16 years	1 7	1 0
Under 5 years	78.5	80 4

INDIVIDUAL SUSCEPTIBILITY

There must also be an individual susceptibility In two instances I observed poliomyelitis in one of twins, the other remaining free (in one instance, two boys of 3 years, in the other, a boy and a girl of 2 years) In both, the two children were equally well developed, previously in good health, constantly together, taking the same food, and with the same environment, the two, therefore, were equally exposed The only difference noted was that in the younger pair of twins, one year previous when they had an attack of measles, the boy had a moderate attack, the disease running a normal course, while the girl, who later developed poliomyelitis, had several severe convulsions in the course of the disease This might have indicated or induced an increased vulnerability of the central nervous system

Zingher[1] states that the Schick test is positive in nearly three times as many cases of poliomyelitis as in normal children, and that susceptibility to one of the less contagious diseases, like poliomyelitis, indicates that the child is more apt to be susceptible to other contagious and infectious diseases Since in most cases infection takes place through the nasopharyngeal mucous membrane, this hypothesis seems plausible, however, it has not been borne out by an investigation of the 150 families in which there were two or more children, which have come under my own observation In ten families the child with poliomyelitis had had diphtheria, and one or more of the other children in the family exposed had remained free, while in nine families another child in the family had had diphtheria, the child with poliomyelitis being exposed and remaining free If the hypothesis should prove to be correct, we should have a simple and valuable means of detecting the susceptible children I tested the Schick reaction on the two pair of twins already referred to The boys both gave a positive

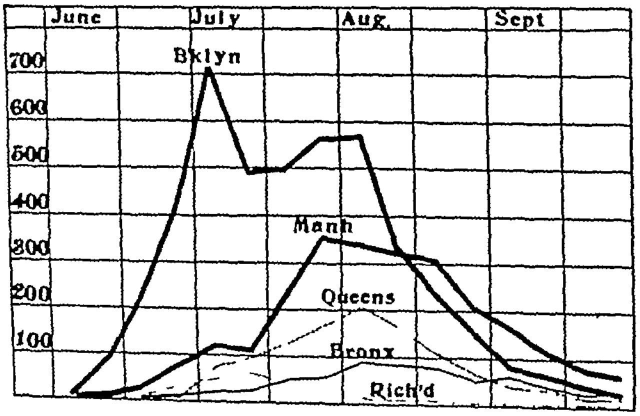

Chart 5 —Course of poliomyelitis in each borough of New York City, 1916 reaction, the poliomyelitis patient a somewhat more marked reaction In the other pair, the girl who had had poliomyelitis gave a negative reaction, the boy a positive reaction It seems highly probable that the infection in poliomyelitis takes place through the nasopharyngeal mucous membrane Amoss and Taylor have shown that the secretions of these parts in most persons have the power of neutralizing or inactivating the virus of poliomyelitis It is not unlikely that in some children this power is absent Dr Kleinberg, who has had large numbers of poliomyelitis patients under observation for many months has noted that they are particularly susceptible to nasopharyngeal infection

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[1] Zingher Abraham The Schick Test in Poliomyelitis Scarlet Fever, Measles and in Normal Children, Am Jour Dis Child, March, 1917, p 247

In communities in which poliomyelitis has already occurred, the number of persons infected is usually less This is shown in the relative number of cases in the boroughs of Manhattan and Brooklyn in 1907 and in 1916 In 1907 the incidence per 10,000 population was 1 61 in Manhattan, and 0 83 in Brooklyn In 1916 the proportion in Brooklyn was much larger, 23 5 per 10,000, as against 9 53 in Manhattan As we should expect, the proportion of patients over 9 years of age, and therefore not immunized by exposure in 1907, was greater in Manhattan in 1916 In the recent epidemic in Manhattan, 7 69 per cent were over 9 years, and in Brooklyn, 5 15 per cent

We shall probably not have a great epidemic of poliomyelitis in New York City in several years, because a large percentage of the susceptible children were attacked, or were immunized by exposure A future epidemic will not be controlled by methods now at our disposal It could, however, be controlled by a method of detecting the 2 per cent of susceptible children, and immunizing these against the disease Reasoning by analogy, the prophylactic use of convalescent serum would be more effective than its therapeutic use, and could be given in smaller quantities

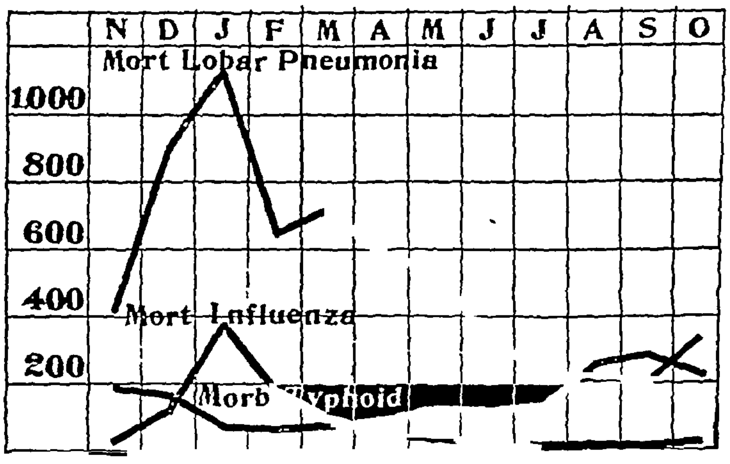

Chart 6—Curves of lobar pneumonia, influenza and typhoid, New York City, 1916

SUMMARY AND CONCLUSIONS

1 The epidemic of poliomyelitis which occurred in New York City in 1916 was the largest recorded Nearly 9,000 cases were reported

2 The crippling resulting from poliomyelitis is less than from the other communicable diseases and heart disease A child with a partially paralyzed limb is less handicapped in the struggle for existence and the enjoyment of life than one with defective hearing or a diseased heart

3 The other communicable diseases of childhood are more common and cause more deaths

4 Infants and young children are especially susceptible Young infants are less frequently attacked, because less exposed to infection

5 A large proportion of patients under 5 years of age does not indicate a mild epidemic

6 The same increased susceptibility of the central nervous system is seen in the age incidence of tuberculous meningitis

7 In temperate climates, epidemics occur during the summer months, but sporadic cases occur throughout the year In Scandinavia, epidemics have extended into the winter months Meteorologic conditions do not play the most important rôle in the spread of the disease Seasonal changes in the power of the nasopharyngeal mucous membrane to neutralize or inactivate the virus of poliomyelitis may account for the increased susceptibility

TABLE 3—SUSCEPTIBILITY

	Number of Families	Number of Children Exposed	Infected	
			Number	Per Cent
Personal observation	204	858	7	2
Department of health	6 748	12 140	252	2+
Measles				96
Whooping cough				75
Scarlet fever				25
Diphtheria				20

8 Patients who have had poliomyelitis seem to be more susceptible to the ordinary nasopharyngeal infections

9 The susceptibility of children under 13 years of age to poliomyelitis is much less than to the other communicable diseases of childhood It is present in only about 2 per cent The susceptibility to measles is about fifty times as great, to whooping cough about thirty-five times, and to scarlet fever and to diphtheria about ten times

10 Children who are susceptible to poliomyelitis are not necessarily more susceptible to the other communicable diseases

11 There exists a distinct individual predisposition or susceptibility

12 We shall probably not have another great epidemic in New York City for several years, because a large percentage of the susceptible children have been attacked or have been immunized by exposure to the disease

13 A future epidemic could be controlled if we had a method of detecting the 2 per cent of susceptible children and could immunize these against the disease with convalescent serum

250 West Eighty-Eighth Street

Application of Paraffin Film—Joseph S Lewis, M D, Buffalo, writes May I offer a suggestion to simplify the use of paraffin film for burns I have found it useful to prepare the dressing as follows A roller bandage 2 inches in width is sterilized and placed in a tin salve box Enough paraffin, plain or proprietary, is placed with it, and the whole covered and put in the sterilizer or in boiling water, thereby saturating the bandage, and a little to spare, with the paraffin For clinical use the tin is placed in boiling water until the paraffin melts Then so much bandage is drawn out with sterile forceps and cut off with sterile scissors as is needed, whether a single piece or several strips imbricated The dripping bandage is quickly applied to the surface to be dressed, as it cools rapidly in transit This may be followed with cotton and the dry bandage

RESULTS OF THE RECENT EPIDEMIC OF POLIOMYELITIS IN NEW YORK STATE *

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The wave of poliomyelitis which swept over the United States last summer helped to clear up some obscure and disputed points in its epidemiology From the standpoint of preventive medicine, a knowledge of the mode of contact, transmission and communicability is essential in order to control the spread of disease The material on which this paper is based was obtained from a study of 4,186 cases reported to the New York State Department of Health from June to December, 1916 This does not include the cases occurring in the city of New York

The age incidence in the state differed somewhat from that in the city, as 55 per cent of the cases occurred in children under 5 years of age, as compared with 90 per cent in New York City Poliomyelitis was almost entirely a disease of childhood in the city of New York, where there were only 1 7 per cent of the cases among persons over 16 years of age In the state, exclusive of New York City, 10 per cent of the cases were of persons over 16 years of age This difference between the age incidence in urban and rural sections of the state seems to be borne out by the experience of other states in the last epidemic At the Cincinnati meeting of the American Public Health Association, Dr Frost declared that "studies of statistics of such epidemics as are now available show that in rural epidemics, especially those in Iowa and Minnesota, a much larger proportion of the cases have been in the higher age groups than has been the case in epidemics occurring in large cities"

Dr Frost suggests an explanation for this difference, when he says, "Certain other infectious diseases, notably measles, are largely limited to children, not because they are essentially children's diseases, but because the adult population has been more or less immunized" It seems not unlikely, therefore, that the limitation of poliomyelitis in urban epidemics almost entirely to children may be due to the fact that adults had developed a certain degree of immunity, through mild and perhaps unrecognized attacks in their early years, while the persons in more sparsely settled areas, who had been less exposed to the contagion of the disease in their childhood, had not acquired the degree of immunity which would render them able, as adults, to resist the infection when present in epidemic form

The mortality among the 4,186 patients was 866, or 21 1, as compared with the mortality in the city of New York of 27.2 The age incidence in the mortality between the city and the state is similar to that in the morbidity In New York City, 79 per cent of the total deaths were of patients under 5 years of age, while in the up-state cities these deaths constituted 59 per cent, and in the rural sections 45 per cent In the rural sections of the state, 19 per cent, or nearly one out of five deaths, occurred over the age of 16 The popular term "infantile paralysis" is therefore a misnomer

The period of incubation as shown by a study of 756 cases to determine the date of paralysis after the first sign of acute symptoms was 68 7 per cent within three days, 79 per cent within four days, 95 7 per cent within seven days, and 98 per cent within ten days This would indicate that the period of incubation is comparatively short It can therefore be stated with some degree of positiveness that the incubation period is from three to ten days If a child who has been exposed to a patient with poliomyelitis does not develop symptoms of the disease within two weeks, it can be considered safe

The most important point to determine and about which no reliable information has been published is the length of time a patient having poliomyelitis may transmit the disease and be a menace to the community The data studied were obtained from reports sent to the department by physicians and sanitary supervisors It was necessary to include in this study only those instances in which the date of onset of the primary case was positively established and a definite date when the secondary case was exposed The number of cases in which these data were returned was necessarily small, as in most instances a strict quarantine was imposed as soon as the case was diagnosed, so that the number of exposures was limited

PARTIAL PERIOD DURING WHICH PATIENTS WITH POLIOMYELITIS WERE A SOURCE OF INFECTION

Primary		Secondary		Date of Exposure	Onset	Partial Period Poliomyelitis Communicable in Primary Cases
Case No	Onset	Age	Case No			
1010	Aug 1	18 mo	448	Aug 4	Aug 21	3 days
471	Aug 2	2 yr	475	Aug 3	Aug 14	1 day
P 528	Aug 23	12 yr	538	Aug 22	Aug 28	1 day
P 578	Aug 23	12 yr	539	Aug 22	Aug 29	1 day
650	Aug 5	16 yr	551	Aug 11	Aug 15	6 days
2104	Aug 30	9 yr	635	Aug 30	Sept 5	1 day
2072	Sept 1	5 yr	673	Sept 3	Sept 9	2 days
1653	Aug 6	3 yr	657	Aug 10	Aug 20	4 days
3158	Sept 18	10 mo	700	Sept 19	Sept 28	1 day
2406	Aug 26	4 yr	1016	Aug 26	Sept 4	1 day
1005	Aug 5	6 yr	1034	Aug 7	Aug 17	2 days
1238	Aug 1	10 yr	1060	Aug 8	Aug 12	7 days
3328	Sept 18	7 yr	2055	Sept 18	Sept 27	1 day
3034	Sept 12	7 yr	3286	Sept 14	Sept 19	2 days
2168	Aug 24	2 yr	2354	Aug 24	Aug 31	1 day
1078	Aug 11	2 yr	2414	Aug 13	Aug 17	2 days
942	Aug 11	4 yr	1612	Aug 10	Aug 18	1 day
Robt E	Aug 26	2 yr	Irene S	Sept 3	Sept 14	8 days

From the table of thirty-six primary and secondary cases, it would seem that the longest period a primary case was actually observed to be infectious was eight days, and in most cases it was one or two days There were a number of cases reported in which the onset of the disease was reported one or two days after an exposure Not all of these were included, as it was felt that in many instances they probably received their infection at the same time that infection occurred in the so-called primary case The conclusion to be drawn from this study is that for the protection of public health a period of quarantine of three weeks would render ample and sufficient protection This is the period required in the city of Washington and in the state of Wisconsin A longer period is unnecessary and often a distinct hardship

That poliomyelitis is transferred by contact is becoming more generally accepted A committee appointed by the New York City Department of Health, headed by Dr Simon Flexner, announced a few days ago its conviction that the disease was thus

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* Read before the joint meeting of the Section on Diseases of Children the Section on Nervous and Mental Diseases and the Section on Orthopedic Surgery at the Sixty Eighth Annual Session of the American Medical Association, New York June 1917

transmitted A commission appointed by Surgeon-General Blue of the United States Public Health Service stated that "the infectious agent was transmitted chiefly by contact with patient or carrier, but exact incidence of such contact is often difficult to determine on account of unrecognized forms of the disease" This commission further observed that "this disease was widely prevalent and was most frequently of the nonparalytic type"

No one could fail to become convinced that the infection is transmitted by contact after studying the spot maps made of the cases as they were reported in the state from week to week The cases followed the lines of communication with such consistency as to be unmistakable One epidemic which has been carefully studied out by Mr Chalmers, statistician of the department of health, was proved to have resulted from exposures at a county fair

CONCLUSION

We have learned from this recent pandemic that poliomyelitis is transmitted by contact with a patient or a carrier, that the period of incubation averages seven days, and that three weeks is a sufficient period to hold a patient with poliomyelitis in quarantine

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FATIGUE AND EXERCISE IN THE TREATMENT OF INFANTILE PARALYSIS

A STUDY OF ONE THOUSAND EIGHT HUNDRED AND THIRTY-SIX CASES *

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This analysis of 1,836 cases of infantile paralysis consists of a study of the records of the first round of the poliomyelitis clinics of the New York State Department of Health, which began, Oct 17, 1916, and finished, Jan 20, 1917

The paper is an abstract of a preliminary report on the scientific side of the work, presented to the New York State commissioner of health, to whom I am indebted for permission to publish these data Extensive tabulation has been made of many points in the report to the commissioner, with whom have been deposited all the original records from which these data are drawn The presentation here of a large number of tables would be simply confusing and defeat the purpose which I have in mind, which is merely to call attention to four salient points which I believe these figures show The tabulations were made to cover a large number of points, most of which proved to be of no great interest or importance, but certain of the tables told a perfectly definite story, and this paper will be devoted to the study of these points They are that

1 A complete examination in every case gives a different picture as to the general and special distribution of the paralysis from the usual one

2 Muscular weakening is much more frequent than total paralysis

3. A greater severity of the degree of paralysis in the legs of old as contrasted with new cases suggests that the weight-bearing use of the legs in walking is harmful

4 The differing functions of the right and left arms may be utilized for the study of the effect of nonweight-bearing exercise

These cases were studied with great care in the clinics, and in every instance an examination was made by one of the three surgeons in charge, Dr Armitage Whitman, Dr John T Hodgen or myself In every case this examination included both arms, both legs, back, neck and abdomen It consisted in obtaining, or attempting to obtain, voluntary contraction of each different muscle or muscle group, with limbs placed under favorable conditions of leverage The muscles were then graded as

1 Normal

2 Good, when the muscle was strong enough to overcome gravity and some resistance, but was not quite of normal strength

3 Fair, when the muscle was able to overcome gravity, and could perform part of the normal movement.

4 Poor, when slight movement could be accomplished but gravity could not be overcome.

5 Trace, when no movement of the limb could be accomplished, but the muscle could be felt to contract

6 Totally paralyzed, when attempted voluntary movement was not accompanied by any perceptible contraction of the muscle

According to this standard, every available muscle or muscle group was classified in every case Any such classification is subject to a certain amount of personal variation, but this proved on the whole close enough to give a general idea of the character of the muscle For purposes of simplicity in the paper, the muscle is spoken of as if it were the only structure to be considered, but it is recognized that in this study the muscle is to be considered as the index of the condition of the neuromuscular mechanism In the 1,836 records taken consecutively from our files for analysis, 513 were of children 3 years of age or less Such records, although carefully made, are not sufficiently accurate for detailed analysis on account of the age of the children, and were omitted from the study except where especially stated

TABLE 1—DURATION OF PARALYSIS AT EXAMINATION (THREE HUNDRED AND FIFTY THREE OLD CASES)

Duration, Years	Number of Cases	Duration Years	Number of Cases
From 1 to 2	25	From 12 to 13	7
From 2 to 3	28	From 13 to 14	3
From 3 to 4	38	From 14 to 15	5
From 4 to 5	29	From 15 to 16	2
From 5 to 6	38	From 16 to 17	2
From 6 to 7	62	From 17 to 18	3
From 7 to 8	41	From 18 to 19	0
From 8 to 9	20	From 19 to 20	0
From 9 to 10	32	From 20 to 21	0
From 10 to 11	9	From 21 to 22	2
From 11 to 12	7		

This leaves for detailed analysis 1,323 cases in which the patients were over 3 years old These form two groups (1) a group of 948 cases with onset in 1916, and (2) a group of 375 cases with onset in 1915 or earlier The recent cases were from one to six months' duration when the patients were seen at the clinics, and the group of old cases had lasted from a little over a year to twenty-two years, with an average duration of over six years (Table 1)

The groups of recent cases and old cases were studied separately on all points, and the data of

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* Abstract of a preliminary report made to the state commissioner of health of New York.

* Read before the joint meeting of the Section on Diseases of Children, the Section on Nervous and Mental Diseases and the Section on Orthopedic Surgery at the Sixty Eighth Annual Session of the American Medical Association, New York, June, 1917

the two groups compared In the recent cases we had patients just emerging from the acute stage with the original phenomena of the disease unmodified In the group of old cases we had a picture of the disease years after the attack, with modifications induced by the conditions under which the patient had lived in the interval Few had received continued modern treatment, all had been as active in walking as their disability had allowed, and these old cases represented what was liable to happen in the disease when treated by old methods, if treated at all, because patients under treatment by competent orthopedic surgeons were naturally not apt to appear at public state clinics By contrasting, then, the phenomena of these two groups, it was hoped that something of the natural history of the disease might be learned

TABLE 2.—AGES OF PATIENTS

Ages Years	Number of Cases	
	Affected in 1916	Prior to 1916
Under 1	6	
From 1 to 2	224	
From 2 to 3	271	2
From 3 to 4	195	15
From 4 to 5	125	21
From 5 to 6	125	14
From 6 to 7	97	23
From 7 to 8	63	35
From 8 to 9	56	37
From 9 to 10	40	46
From 10 to 11	48	45
From 11 to 12	27	34
From 12 to 13	19	21
From 13 to 14	15	17
From 14 to 15	12	18
From 15 to 19	54	40
From 20 to 29	46	25
From 30 to 39	13	4
From 40 to 49	8	2
50 and over	2	
Total	1461	375

Age—The age tables show nothing of especial interest Of 1,461 patients affected in 1916, 513 were under 3 years, 4 5 per cent were over 20, two patients being over 50

GENERAL DISTRIBUTION

The tabulation of general distribution from this group of cases examined with great care shows that the distribution is not quite what certain earlier tabulations have shown it to be, and that certain locations of the paralysis are extremely common and practically important, as in the abdomen and neck.

TABLE 3—GENERAL DISTRIBUTION IN THE ORDER OF RELATIVE FREQUENCY

	New Cases	Old Cases
Both legs	333	127
One leg	202	83
Both legs and both arms	177	55
Both legs and one arm	101	43
One arm	83	19
One arm and one leg same side	38	13
One arm and one leg opposite sides	29	7
Both arms	33	4
Both arms and one leg	20	8
Girdle cases	57	1
Facial alone	38	1
Total	1 166	303

In recent cases the most common involvement is of both legs, then one or the other leg, next in frequency all four extremities, then two legs and one arm, and after that one arm Next in frequency comes a distribution of much importance—one arm and one leg—and here a hemiplegic arrangement is distinctly more common than one arm and one leg on opposite sides in both recent and old groups (Table 3)

The group of old cases shows the same general relative frequency as the recent cases, except in the involvement of all four extremities, two arms and one leg and both arms, all of which are much less frequent than in recent cases This shows the tendency of these extensive original paralyses to clear up in the arms An important and serious type of paralysis which does not affect the extremities is described as the girdle type when the affection is chiefly of the back and abdomen

Both sides of the cord are more frequently affected than one side Of 705 recent cases, 60 5 per cent affected both sides of the cord, as shown by the distribution of the paralysis on both sides of the body

The frequency of paralysis of the abdomen, the back and the neck, as shown by this table, is so important as to require separate consideration

Abdomen —In 948 patients over 3 years of age affected in 1916, 72 per cent were paralyzed in the abdomen, and these unique findings are undoubtedly because examination in every case was made as to this point In my experience at least many cases previously have escaped observation because this especial point was not noted unless extreme The normal child can sit up from the lying position with the arms crossed on the chest without effort when the abdominal muscles are normal and hip flexors are not seriously involved By placing the fingers on the recti and lateral abdominal muscles, one can note the degree of paralysis and whether it is bilateral or unilateral As contrasted with the 72 per cent of affection of the abdomen in recent cases, the table of old cases shows 44 8 per cent of affection This indicates a tendency of this paralysis to diminish in frequency and severity in the natural history of the disease, that is, the prognosis would seem fairly favorable for improvement

TABLE 4 —INVOLVEMENT OF ABDOMEN BACK AND NECK

	1916 Cases (948)			Old Cases (375)		
	Involvements		Ratio of Total to Partial	Involvements		Ratio of Total to Partial
	Number	Per Cent		Number	Per Cent	
Abdomen	[illegible]	72.3	1 9 6	168	44.8	1 15 3
Back	128	13.5	1 21.9	55	14 6	1 20 2
Neck	103	10.8	1 49 6	27	7	0 total

Back —The examination for paralysis of the back muscles is not as satisfactory or as accurate as most examinations, and slight degrees of weakness are apt to be overlooked The tables show an involvement of 13 5 per cent of the back in the patients in the recent group, and 15 per cent in those of the old cases

Neck —Neck paralysis has evidently been largely overlooked, but frequently exists In the recent cases it was present in 11 per cent, but in only 7 per cent of the old cases The normal patient, child or adult can lift the head against quite a little force when lying on the back Weakness or paralysis of one or both sternomastoid muscles makes this impossible This was the test adopted From its relative infrequency in late cases, the prognosis is evidently favorable for improvement

Scoliosis —The significance of recognizing abdominal paralysis is shown, for example, in connection with lateral curvature of the spine, with which it is often associated, 179 cases of lateral curvature of the spine were recorded, sixty-nine occurring in recent cases and

110 in old cases The proportion of sclıosis in the two classes of cases is interesting In the recent cases scoliosis was recorded in 7 per cent, and in the old cases in 30 per cent Scoliosis is therefore relatively four times as common in old as in recent cases, and is a late complication

TABLE 5—SCOLIOSIS AND ITS ASSOCIATED PARALYSES

	Old Cases		1916 Cases	
	Number	Abdomen Involved	Number	Abdomen Involved
One leg	10	5	10	7
Two legs	17	15	14	13
One arm	5	1	10	7
Two arms	3	1	5	4
One leg and one arm	3	2	8	2
One leg and two arms	2			
Two legs and one arm	8	6	6	6
Four extremities	12	9	14	12
Abdomen and back	5		6	
Short leg	41	6		
No paralysis	4		1	..

In recent cases, involvement of the abdomen occurred in connection with lateral curvature in 75 per cent of the cases, but in only 42 per cent of the old cases Apparently the most frequent cause of serious scoliosis is unilateral involvement of the abdominal muscles Any affection of the abdomen in the early stage should make one watchful for scoliosis in the late stage

Many unusual and previously unrecorded locations of paralysis were noted which will be discussed in a subsequent report

TOTAL PARALYSIS

The two groups of cases were then analyzed with regard to the number and distribution of total paralyses of individual muscles occurring first, in the new, and second, in the old cases

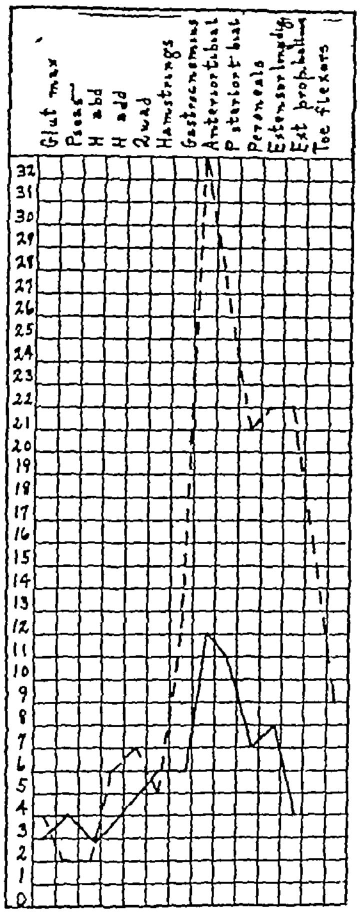

Chart 1—Percentage of paralysis of each muscle in both recent and old cases in the lower extremity solid line, recent cases, broken line, old cases

In the recent cases, in 948 patients there were 2,352 totally paralyzed muscles, an average of two and a half totally paralyzed muscles per individual In 375 old cases there were 1,622 totally paralyzed muscles, an average of four and a third totally paralyzed muscles per individual Total paralysis was therefore relatively more frequent in old than in new cases, a point the importance of which will be commented on later As to involvement of the different muscles as to total paralysis, the following was the order of frequency in the lower extremity Paralysis of the anterior tibial leads in both new and old groups Next in order comes the posterior tibial, then the two extensors, the peronei, gastrocnemius, hamstrings and quadriceps, with a smaller number of total paralysis in the hip The order of involvement does not differ materially in the group of new and of old cases It has just been stated that there is a much larger proportion of total paralysis in old than in new cases to the individual, and an investigation was made to see if this occurred in any especial location Chart 1 shows that the increased prevalence of total paralysis of the lower extremity in old cases occurs below the knee, and that in the thigh and hip muscles the proportion of total paralysis remains the same in new and old cases, but rises greatly in the leg and foot in old cases

TABLE 6—TOTAL PARALYSES OF LOWER EXTREMITY IN ORDER OF RELATIVE FREQUENCY

	948 Recent Cases			375 Old Cases		
	Left	Right	Total	Left	Right	Total
Anterior tibial	123	124	247	126	120	246
Posterior tibial	114	119	233	104	102	206
Extensor proprius hallucis	73	79	152	87	73	160
Extensor longus digitorum pedis	78	71	149	86	77	163
Peroneals	75	72	147	78	78	156
Gastrocnemius	60	61	121	47	51	98
Hamstrings	57	59	116	20	22	42
Quadriceps	51	48	99	28	27	55
Hip adductors	47	38	85	19	27	46
Toe flexors	51	32	83	41	29	70
Iliopsoas	41	37	78	7	8	15
Hip abductors	37	32	69	12	8	20
Gluteus maximus	31	36	67	17	12	29
Totals	838	808	1,646	672	634	1,306

With regard to the upper extremity, the analysis of the total paralysis shows nothing of any great importance The number of observations is relatively small, the muscular relations about the shoulder are very complex, and the study of the upper extremity from this point of view is less satisfactory than that of the lower The paralysis of the upper extremity is most frequent in the deltoid muscle, and next follows the opponens pollicis, with the smallest number of total paralyses in the hand The proportion of total paralysis is practically the same in old and new cases

TABLE 7—TOTAL PARALYSES OF UPPER EXTREMITY IN ORDER OF RELATIVE FREQUENCY

	948 Recent Cases			375 Old Cases		
	Left	Right	Total	Left	Right	Total
Anterior deltoid	38	41	79	24	15	39
Posterior deltoid	36	40	76	19	14	33
Opponens pollicis	26	37	63	26	17	43
Outward rotators	19	16	35	8	8	16
Rhomboids	17	17	34	6	3	9
Latissimus dorsi	10	15	25	9	7	16
Biceps	10	10	20	7	2	9
Triceps	11	9	20	10	2	12
Lumbricales	8	11	19	9	6	15
Trapezius	8	10	18	5	5	10
Pectoralis major	6	12	18	13	6	19
Interossei	6	12	18	13	6	19
Thumb extensors	7	7	14	7	1	8
Serratus magnus	6	6	12	1		1
Wrist flexors	6	6	12	7	1	8
Thumb flexors	6	6	12	5	4	9
Supinators	4	7	11	8	2	10
Finger extensors	3	8	11	6		6
Pronators	4	6	10	8	1	9
Wrist extensors	5	5	10	5	3	8
Finger flexors	4	5	9	4	1	5
Totals	240	286	526	200	104	304

RELATION OF TOTAL TO PARTIAL PARALYSIS IN NEW AND OLD CASES

In the preliminary report[1] to the State Department of Health of Vermont in 1914, it was stated that the relation of total paralysis to partial in a combined group of old and new cases was as 1 2 5 Since the beginning of the Vermont work, the examination for muscular involvement has become more accurate and more delicate and a larger number of weakened muscles are detected, which originally probably would have been passed as normal This change would of course make the proportion of partial paralysis higher in relation to total than in the original Vermont figures because more muscles are now recognized as involved

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[1] Lovett, R W Treatment of Infantile Paralysis, The Journal A M A, June 26, 1915, p 2118

TABLE 8—MUSCULAR INVOLVEMENT

	Paralysis		Ratio of Total to Partial
	Partial	Total	
Lower extremity			
Patients of 1916 over 3 years	8,[illegible]4	1,71[illegible]	1 4 2
Old cases	2,619	1,[illegible]7	1 2.8
Upper extremity			
Patients of 1916 over 3 years	3,[illegible]8	5[illegible]0	1 6 4
Old cases	1,[illegible]	25[illegible]	1 5.8

This ratio will now be discussed in the New York cases, contrasting as usual the two groups of recent and old cases

Taking the ratio of total to partial affection in all cases without regard to the location of the paralysis, the ratio was 1 5 in the recent cases, and 1 3 in the old cases Examining further to see if this ratio differs in different parts of the body, if the lower extremity is considered alone in the new cases it is 1 4 2, and in the old, 1 2 8 In other words, the ratio of total to partial paralysis is very much higher in the lower extremity than elsewhere Investigating now still further the lower extremity to see in which part of it this difference occurs, we find that in the leg and foot the proportion in new cases is 1 2 4 and in old cases 1 1 5 In the thigh, that is, in the quadriceps and hamstring muscles, in new cases it is 1 5 7, and in old cases 1 7 In the hip in new cases it is 1 7 and in old cases 1 11 4

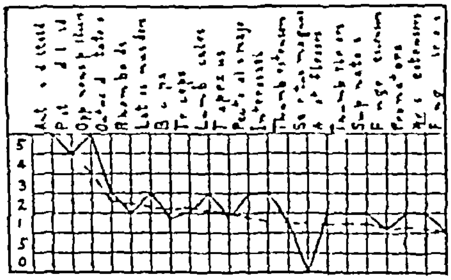

Chart 2—Percentage of total paralysis of each muscle in both recent and old cases in the upper extremity solid line recent cases broken line, old cases.

In short, in the leg and foot the proportion of total to partial paralysis is very much higher in the old than in the new cases, but lower in the thigh and hip The hip and thigh muscles become less affected and the foot muscles more affected as the years pass

The proportion of total to partial paralysis in the foot and leg in old as contrasted with recent cases accentuates the observation already made as to the greatly increased proportion of total paralysis in the muscles of the leg and foot

This seems a matter of the highest importance, and the reading of it seems clear It may be assumed that when so large a group of cases is taken for analysis, minor differences between the characteristics of various epidemics will be eliminated and that the general behavior and type of the disease will be on the whole the same, and that therefore one may safely reason from patients paralyzed in 1916 to patients paralyzed in previous years

This difference between the relative frequency of partial and total paralysis in the two groups may be met by one of two explanations 1 Partial paralysis may clear up in the course of the years following the attack, leaving a larger proportion of total paralysis in these late cases That this is not the case is shown by the fact that there is an absolute and relative increase of total paralysis in the late cases as contrasted with the early ones 2 The partial paralysis changes to total paralysis in the course of years In this instance, total paralysis would become relatively and actually more common in the old cases, and the proportion of total to partial paralysis would become higher in the old than in the new cases This is exactly what has happened here

The question of interest in this connection is, Why should partial change to total paralysis after the first months following the attack? Here again we obtain suggestive data from the figures The high occurrence of total paralysis in the old cases has been shown earlier in the paper to be almost wholly due to increase in the foot and leg In the thigh, hip and upper extremity, there is no such increase, and if we looked only at these parts of the body, we should feel that the proportion between total and partial paralysis was about the same in new as in old cases Where so striking a difference is found as exists in the foot between old and new cases, it suggests very strongly that there is some special reason for this difference, and this reason is quite evident when one considers the function of the foot in the months following the acute attack of infantile paralysis Of all parts of the body, the foot has the maximum weight to carry, the work thrown on the foot is continuously heavy, in walking about and in standing there is no cessation of activity in these muscles, and if, as I have believed and tried to teach for the last two years, fatigue and overuse are detrimental factors of the highest importance in the convalescent stage of infantile paralysis, it is in the foot muscles that one would look for the deleterious effect of overuse, and such deleterious effect would be the change from partial to total paralysis In 1915 I[1] called attention to the fact that partially paralyzed muscles might lose power by overuse, and I have felt convinced that many a case of gastrocnemius weakness, for example, was converted into a total loss of the muscle by overuse and overtaxing by walking

In the entirely unexpected result of the present analysis, made by assistants not familiar with my views on this matter, is to be found a confirmation of the opinion that I have held on the effect of muscular fatigue

TABLE 9—COMPARISON OF OLD AND NEW CASES

Location	Old Cases Ratio of Total to Partial	1916 Cases Ratio of Total to Partial
Leg and foot	1 1 5	1 2 4
Thigh	1 7	1 5 7
Hip	1 11 4	1 7 2
Shoulder and arm	1 6 3	1 5 6
Hand and forearm	1 6 5	1 8 0

It may be permissible to call attention once more to just what these figures show 1 Total paralysis is relatively much more frequent in patients paralyzed prior to 1916 than in patients paralyzed in that year 2 The proportion of total to partial paralysis in the whole group of new cases is less than in the whole group of old cases 3 When this matter is analyzed, it is found that it is due almost wholly to conditions in the muscles of the leg and foot in which the proportion of total to partial paralysis is very much higher in old than in new cases, whereas in the hip and thigh it is relatively less in the old cases than in the new 4 The interpretation of this that seems best to fit the fact is that in the months following the attack when walking is begun, the activity of weight bearing constitutes such gross overuse of the leg muscles that *not only* are they kept from improving, but also weakening is converted to total paralysis This is only to be expected if one looks at the facts The lowering of power in the weakened muscles of the leg is considerable, as the following will show The records of forty-nine cases of leg paralysis were taken consecutively from the files for analysis as to the degree of involvement in the different leg muscles, as shown by the spring balance test The power remaining in each of the groups of the lower extremity ranged from 28 to 52 per cent, with an average of 41 per cent (Below the knee the average of all groups was 34 6 per cent, above the knee 41 per cent)

TABLE 10—AVERAGE AFFECTION OF EACH MUSCLE GROUP, FORTY-NINE CASES, IN PERCENTAGES OF NORMAL STRENGTH

Group	Per Cent	Group	Per Cent
Plantar flexion	31 5	Abduction	41 0
Dorsiflexion	82 5	Hip extension	51 2
Inversion	28.2	Hip flexion	54 5
Eversion	86 5	Knee extension	84 5
Adduction	42 5	Knee flexion	87 0

Whatever may be said in its favor, walking on a muscle which is reduced to 30 or 40 per cent of its normal power is a very serious tax on that muscle's endurance, and however much one may be a believer in exercise, the use of such muscles for weight bearing and walking is not desirable from what we know of the physiology of muscles These data taken together bear out a perfectly clear conviction on my part, already definitely expressed, that walking to any extent, with or without braces, in the first year after an attack of infantile paralysis *not only* tends to delay the improvement of partly paralyzed muscles and is liable to set a limit to their final restoration, but may also change them from the class of partly paralyzed to totally paralyzed muscles

TABLE 11—NUMBER OF PARALYZED GROUPS OF MUSCLES, PARTIAL AND TOTAL (LEFT AND RIGHT)

	1916 Cases		Old Cases	
	Left	Right	Left	Right
Upper extremity				
Hand and forearm	853	013	505	425
Arm	1,121	1,801	562	455
Total	1,974	2,214	1,067	880
Percentage	47%	53%	55%	45%
Lower extremity				
Hip	1,450	1,346	707	737
Thigh	721	745	390	398
Leg and foot	2,087	2,071	1,343	1,320
Total	4,158	4,162	2,440	2,455
Percentage	50%	50%	50%	50%

If weight-bearing exercise is detrimental in the first year after the paralysis, and leads to muscular deterioration, most marked where the weight is greatest, one may well inquire whether these tables give any information as to the effect of nonweight-bearing muscular exercise on the progress of paralysis

DIFFERENCE BETWEEN RIGHT AND LEFT SIDES

From a study of the upper extremity, one may see the effect of nonweight-bearing exercise, and one may go farther and study the effect of the different activity of the right and left hands on the recovery from the paralysis The function of the two hands is different, the right being used much more freely and continuously than the left, and for more finely coordinated movements, so that in the contrast of the two the effect of nonweight-bearing exercise may be analyzed As a control, one may take the lower extremities, the function of which is similar Analysis of the figures shows that the right and left legs are affected exactly alike in new and old cases Both as to the actual *number* of paralyses of *all* grades, and as to the number of totally paralyzed muscles, the percentage is practically 50 for right and left in both groups In the upper extremity recent cases show a slightly greater involvement of the right arm in cases in which all grades of paralysis are noted; 54 per cent being on the right side in new cases In estimating total paralyses of the upper extremity, there were found 36 per cent on the right and 64 per cent on the left, in old cases

In other words, *all grades of paralysis and particularly* the total form, are about the same in the right and left arms in the beginning, but very much less in *the later cases in the right arm, whereas, in the legs,* the frequency of both right and left is the same in early and in late cases, from which one may infer that nonweight-bearing exercise is beneficial, as shown by the greater improvement of the right upper extremity

TABLE 12—DIFFERENCE BETWEEN LEFT AND RIGHT SIDES

	Lower Extremity		Upper Extremity	
	Left, Per Cent	Right, Per Cent	Left, Per Cent	Right Per Cent
All paralyses, total and partial				
1916 cases	50	50	47	53
Old cases	50	50	55	45
Total paralyses by individual muscle groups				
1916 cases	51	49	46	54
Old cases	52	48	64	36

CONCLUSION

The conclusions presented in this paper have been derived from an impartial study of a large number of figures obtained from carefully studied cases They seem to show that weight-bearing exercise, such as walking to any extent in the first year after infantile paralysis, is apparently attended with risk and is followed in many instances by a change from partial to total paralysis in the foot muscles, whereas in other parts of the body this deterioration does not occur

The evidence of these figures is also definitely to the effect that the right hand recovers much more effectively than the left, which may be interpreted as showing that the use of nonweight-bearing exercise is beneficial

It is gratifying to find clinical experience indorsed by an independent statistical examination, and I should like in closing to go definitely on record to the effect that I believe that the weight-bearing use of the muscles with or without braces, in the first year following infantile paralysis involving one or both legs, is risky and detrimental if practiced to any considerable extent, and that by the use of *nonweight-bearing* therapeutic muscular exercises conjoined with little or no walking, in cases affecting the leg it is possible to secure a class of results with which I, for one, had been previously wholly unfamiliar

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ABSTRACT OF DISCUSSION

Dr. Haven Emerson, New York Until the parents know enough to call a physician and the physicians are in a position to make a reasonably quick diagnosis of the disease and until they report the cases at once to the authorities, it is unlikely that any methods of protection other than those that the individual physician directs can be employed

I should like to indicate two matters that as a department, I believe we have learned from this epidemic. In the first place there is no evidence that environment plays any part in the development or spread of the disease. We have abandoned the old process of fumigation, which was done in the belief that by making a smell in the room, the persons who had the disease could be kept from spreading it to others It was necessary to consider whether environment had a bearing on the spread of the disease. Everything, however pointed to personal communication as the source of the infection rather than to infection from the premises There was nothing to point to home environment, nothing to point to the character of the diet unclean food unclean air dirty streets, or anything else of that kind as having a relation to the spread of the disease

Institutions in New York City are under the supervision of the department of health as to the manner of housekeeping of the institution There were 28,000 children in these institutions A quarantine was placed on them on July 1, and visitors were excluded The children were not allowed to be at large in the community and acquire infection in that way No children were admitted to any of these institutions without a three weeks isolation period The result was that only twelve cases of poliomyelitis developed among the 28 000 children in these institutions during the entire summer and fall Of these twelve cases, only three developed after July 14 That shows that it is possible by physical separation to accomplish some sort of protection for groups of children Dr Herrman's suggestion that we isolate the susceptible, if we know them would offer a chance of protection to the community

During the past month there have been three deaths reported as due to poliomyelitis One of these at necropsy, proved to be cerebral abscess, another cerebral tumor, and the other, epidemic cerebrospinal meningitis The community has learned to expect and demand of physicians spinal puncture as a diagnostic procedure

It is apparent from some of the studies made in these children, that those who have normal throats are less susceptible to this disease than are those who have abnormal throats

We have planned to treat this disease this year and in the future much as we do scarlet fever or measles, or any other communicable disease It has been agreed by the city and state health officers independently that the period' of isolation for this disease should be three weeks If the children who have been sick and have recovered from the disease still continue, after three weeks' isolation, to have a temperature or discharges from the nose and throat, their isolation period should continue as in the case of scarlet fever We make one other exception in regard to isolation, in that people concerned with preparation and handling of food have an opportunity of spreading fresh nose and mouth infection through food more directly than is the case of other industries Therefore, we expect to limit the freedom of adults engaged in the preparing and serving of foods, if they are members of a household where there is infection. It may be that food does not serve as a carrier, but it makes a poor impression on the community to have a person taking care of a sick child in the back room, and serving food to people in the front. I think it is wiser, in this city to limit the people who are permitted to deal with the handling and preparation of food to those who are free from any obvious contact with such infective diseases as may be carried by hand and mouth infection We are prepared as if expecting a return of the disease in epidemic form but so far this year there is nothing to indicate any undue increase or incidence of poliomyelitis in New York City

Dr C. L. Dana, New York This spring it was decided to appoint a joint committee of the Academy of Medicine Public Health Committee and the Neurological Society to make some investigation of the poliomyelitis situation One of our committee Dr Wilson, made a careful study of the relative immunity to the disease in relation to the age of children as compared with other infectious diseases He showed definitely that the period of greatest susceptibility runs from the second to the fifth year in poliomyelitis, corresponding fairly well with that of the other infectious diseases of childhood with the exception of whooping cough The conclusion is that immunity to poliomyelitis is not due to a great prevalence of abortive or unrecognized attacks of the disease, but that it is a natural immunity, just like the immunity to other infections

We found that the disease is not personally or immediately contagious, except to a small extent The evidence of this is based on the small number of family cases, on the absence of spread of the disease among unprotected children in hospitals schools day nurseries and institutions and on the small number of instances which can be really interpreted as proving personal contagion We believe, however, in quarantine, and in general commend the methods lately adopted by the city board of health We also believe in hospitalization of the patients No epidemic developed in any of the very large number of hospitals and other institutions in New York. A child in a hospital is safe from the disease, even if other cases are brought in If people cannot send the child to a hospital, we have drawn up a memorandum of precautions that provide for hospitalization in the home One of the things that seemed most in favor was the frequent puncturing of the spinal canal during the early stage of the attack. We feel sure that the best methods of treatment of the paralyzed are those described as indicated in paralysis from nerve injuries The use of the Martin spring balance in testing and treating cases is also an addition to the later therapy of the disease

Dr Herman Schwarz, New York I feel very strongly that in this large audience we cannot let pass the statement of the neurologists about the noncontagiousness of the disease I am not going to quibble about the terms contagious or infectious I might say, however, that we saw a great many cases last summer in which, in most instances, there was a history of contact with another case If the neurologists had been doing the field work they would certainly have the impression that, if anything, it might be called 'catching" If you had gone into 300 families where there had been one case, and had heard histories of other children having had sore throats, or malaise, you would also be convinced that the incidence of the disease during an epidemic is much greater than the figures show I should say that there were many thousands more than reported, these cases being too mild to give any definite symptoms whatever

It was one of the commonest things to find another one or more children in the family having been just slightly ill, either before or after the so-called real case of infantile paralysis was reported I know many of these cases were poliomyelitis, for lumbar puncture was performed for the most trifling symptoms and increased number of cells found in the fluid

At present I don't think it is fair to say anything about the degree of contagiousness, but to say that it is not contagious, I believe is going too far

The cell count in the prognosis of the disease has not been of tremendous help to us

Dr. E. C. Rosenow, Rochester, Minn All of us, after listening to this symposium, must feel how helpless we still are in the control and treatment of poliomyelitis The serum of patients who have recovered from poliomyelitis obviously cannot be used on a large scale From the work of Flexner and Noguchi, Amoss and others, it appears that at least abortive attacks of poliomyelitis are necessary in order that neutralizing and protective substances may be produced in the serum. This, it is claimed, is true in the experimental disease in the monkey both from virus and from cultures of the globoid organisms. Amoss' recent work emphasizes the fact that the globoid organisms have, indeed, little antigenic powers. The hope of obtaining a satisfactory remedial agent along these lines appears to me to be small.

A restudy of the bacteriology of poliomyelitis in the recent epidemic has shown the presence of a peculiar pleomorphic streptococcus in atria of infection in the central nervous system in human poliomyelitis and in the brain and cord of monkeys paralyzed with virus. Intravenous injections of this organism soon after isolation produced flaccid paralysis with lesions in the central nervous system in animals. The apparent relation between the large aerobic form and the small anaerobic form has been discussed in a published report. It occurred to me that injections of the large form might call forth a greater production of antibodies in general, as well as antibodies protective against virus. Accordingly, we have immunized a number of horses with aerobic cultures of the pleomorphic streptococcus, and their serums have been tested from time to time as to antibodies and neutralizing and protective power against virus. One horse was injected chiefly with strains recently isolated from monkey poliomyelitis, and another with strains isolated last summer from human poliomyelitis. The serum from both has developed the power to agglutinate in high dilutions (up to 1 to 1,000,000) the strains from human and monkey poliomyelitis. Neither of these serums agglutinate in high dilutions strains of streptococci from other sources, nor do antipneumococcus and antistreptococcus serums agglutinate the pleomorphic streptococcus. The serum from the horse which had been injected with recently isolated strains from monkeys has apparently developed the power to neutralize virus in the test tube and in the monkey. Three monkeys injected intracerebrally with active virus were protected from poliomyelitic attacks by repeated intraspinal or intravenous injections of this serum, beginning soon after injections of virus. Moreover, ten out of thirteen monkeys recovered from typical poliomyelitic attacks following injections of this serum after the symptoms had begun. Nearly all of the untreated controls, and those injected with normal horse serum, died during the attack.

These observations, while too few from which to draw sweeping conclusions, afford strong evidence that the pleomorphic streptococcus isolated so constantly from the central nervous system bears etiologic relationship to epidemic poliomyelitis, but final conclusions can not be drawn as to the exact rôle it plays until a true virus is established.

Dr. Reginald H. Sayre, New York: The great field in poliomyelitis is, of course, prevention, and I hope that Dr. Rosenow may show us how to prevent these patients from becoming paralyzed. What Dr. Lovett has told you about the danger of overexercise in the first year cannot be too strongly emphasized, and the danger of overwork in the first few weeks and months, and also the danger of not noticing a slight paralysis of the trunk and allowing these patients to sit up in a chair. Being propped up in this way is responsible for many lateral curvatures of incurable form, for which the patients later come for treatment. These children are best lying on their backs, and not being encouraged by the nurse, and often by the physician, to do work that their muscles are incapable of performing.

How long after the acute attack is it wise to attempt to do things for these patients? Before coming to that, I should like to say that the wisdom of judiciously directed work cannot be overemphasized. The same facility that a pianist gets by constant practice, the same reeducation of his telegraph lines from his brain to his finger tips, is the thing which will give us results in those paralyzed cases in which there is some power of regeneration of function still left. When should one tell the parent that it is useless to proceed with this sort of treatment? I do not know, because years afterwards, when the patient had been abandoned and nothing was being done, the child being left to crawl on the floor because treatment had been considered useless, I have seen cases of that sort gain a great deal of power by the intelligent application of exercise—sometimes combined with support, and sometimes not. Some of my neurologic friends have said that support is useless and should not be applied, because it has a bad effect on the child's mind, but I think it has a worse effect on its mind to have it crawling around, not being able to walk. To give it the ability to move around and exercise with its playmates by the intelligent application of apparatus, I consider a much better procedure.

I agree with Dr. Lovett that in the early stages it is better to leave the child unhampered by apparatus. It is only in the later stages that it needs support. The question of what shall be done (the application of apparatus or such operations as arthrodesis or neurotization of *muscles) is one for the* late stage of the disease, after several years have passed, not in the immediate condition that confronts us in the children of last year's epidemic, and the people who rush in and operate in the early stages will prevent the patients from having the chance of recovery which nature may afford them later on.

Dr. Horace Greeley, Brooklyn: What I wish particularly to call attention to in regard to the etiology of poliomyelitis, are the conclusions of an article of mine in the July number of the *Journal of Laboratory and Clinical Medicine*. In this article it is shown that "globoid bodies," cultivated from poliomyelitis pathologic material, under the conditions mentioned by Noguchi and others, may be also grown in another form, at temperatures paralleling those prevailing during the prevalence of the disease, that is, about 70 F. At this temperature, these globules assume a bacillus form, similar in characteristics to the gram-negative bacillus sometimes spoken of as the bacillus of distemper. (These characteristics may be brought out at body temperature through the use of a special limewater containing a medium described in the article.) I believe that the organisms of poliomyelitis and of distemper are markedly affected by environment, and that they are one single organism, changing somewhat in character in passing from one group of animals to another. My conclusion in the article quoted was that the organism isolated from patients with poliomyelitis is a pleomorphic bacillus, and that the various forms—globoid bodies, cocci and bacilli—are not different organisms, but only manifestations of pleomorphism in the same organism, as affected by environment, and that this organism is the same as that found in the dog, cat, and other domestic animals when suffering from distemper.

The organism, as shown in my article, is saprophytic, and grows well at "summer heat." It grows well in milk at "summer heat" and resists the pasteurization process while contained therein. It forms spores and is a filter passer.

You all recollect that the commission that investigated the Washington, D. C., outbreak of 1910, reported that during the course of the epidemic the temperature varied between 69.7 and 77.6 F. In New York City the temperature during last year's epidemic was evidently an important factor as the following table shows:

Poliomyelitis in New York City in 1916

Month	Mean Temperature, F	Cases
May	59.3	29
June	64.2	756
July	73.8	3,863
August	73.6	3,306
September	66.0	780
October	57.2	193

All other epidemics have also been associated with "summer heat" temperatures, and the reasons of such associations are, I think, explained by the findings of the article in question.

Dr. William C. Hager, Brooklyn: There are three essential points that the medical profession at large—that is, the general practitioner and the pediatrists—are interested in, and the public also: first, how the disease is transmitted, second, how the diagnosis may be made early, and third, how the disease may be treated You have heard this morning that this is not a contagious disease That is a matter of terms merely It is surely communicable Let me cite one or two cases that I saw myself last year

A child died in Brooklyn, after thirty-four hours' illness, without a diagnosis An old woman of 52 years took care of the child almost constantly She came down one week later with a disease of which no diagnosis was made, but after two weeks of inability to walk she was transferred to a hospital where she remained two weeks and the diagnosis of meningitis was made A spinal puncture was made, but no definite results were obtained from it After another two weeks she was discharged able to walk, but when I examined her she had definite weakness of one leg and inability to raise her left arm When she was discharged from the hospital she went to her son's house in Queens There had been no cases of poliomyelitis in that neighborhood previous to this time. Six days later a child in that family came down with poliomyelitis and was taken to the hospital A day or two later, another child a nephew of her son but living in another house, who had visited at his uncle's but one day after she arrived came down with poliomyelitis and went to the hospital She then went to a house five blocks away to look for rooms and took the upper floor of the house. While there she sat on the porch with the four children of the family and they all drank water and grapejuice together One week later one of the children in that house came down with the disease. Perhaps she did not have it

The diagnosis in the typical cases which constitute the large percentage of these cases is possible before paralysis occurs It should be made as surely as that of any other infectious disease in the typical cases and most of them are typical It can be made first, by the fact that we are dealing with an acute infection of some kind, and secondly, by the fact that we get, as the second stage, involvement of the central nervous system definitely It may be something else, but the symptoms of the typical cases are very suspicious Then the spinal puncture will determine the diagnosis absolutely, and that can be made, if the cases are seen early, before paralysis has occurred That is most important, from the public health point of view, but it is also of the utmost importance, if the children are to receive proper care and a proper line of treatment Let us all combine on early diagnosis

The third essential point is treatment. I was and still am as hopeful as any one that we can find a serum treatment. I think that will come. The theory of immune serum was excellent, but, on the face of it, it is not useful, because the antibodies produced by nature are sufficient to give sure protection to the individual actively immunized, but when you take a small amount of serum and dilute it the dilution brings it, in most cases, below the stage of very active power If we can produce active immunity, that may be another possibility

Dr. Henry Keller, New York One thing struck me as very peculiar, namely, that so few of the patients suffering from tuberculosis of joints have been attacked by infantile paralysis I have seen none. I have also asked Dr Lovett about it and he could not recall a single case of his own I have brought up that same question before the Orthopedic Section of the New York Academy of Medicine, and only one of the men could recall a case I cannot account for it, and am anxious to hear from some one who can

Dr Lovett emphasized and very properly so, that it is essential to keep the patient at rest for a long time, because, by giving the muscles a chance to rest, especially the weight-bearing muscles, the nerves may regenerate The difficulty, however, is to keep the patient quiet if only few muscles of a group are involved If the children are paralyzed so extensively that they cannot walk, they will not resist being kept at rest. It is different, however, when only few muscles are involved I have tried time and again and did not succeed The parents come back and say that they can not keep the child quiet. Hence, after the quarantine period is over, one is compelled to apply some kind of apparatus, or a plaster-of-Paris bandage, in order to have the child walk properly—for it will walk whether you want it to or not

One point which has a practical bearing on treatment, especially in paralysis of the leg muscles, is that muscle groups helped by gravity are usually the weaker muscles, while muscles working against gravity are the stronger group In the muscles of the foot the same rule holds good The everters are the weaker muscles while the inverters are the stronger group Now, if the peroneal group is attacked by paralysis, the inverters being very strong will produce a marked varus deformity in time, unless restrained early in the disease by proper bracing On the other hand, paralysis of the inverters will not be followed by any marked deformity provided ordinary care is taken to keep the foot within the weight line, that is, building up the shoe one-sixth to one-third inch on the inner border is often sufficient.

Lastly it is well to bear in mind that a joint is only incapacitated in virtue of the paralysis of the muscles surrounding it, and hence in the application of a brace, one must see to it that the muscles, as well as the joint are supported In quadriceps extensor paralysis for instance, with a resultant hyperextension of the knee a short brace reaching to the middle of the thigh does more harm than good, because it cuts the very muscle which it should support. A long brace with a pelvic band to support the muscle from its origin to its insertion is the only efficient brace, and no other

Dr George Draper, New York It is impossible for me not to take this opportunity to add my strongest and most emphatic approval to the remarks of Drs Shaw and Schwarz on the subject of contact distribution of this disease It was most surprising to hear the report from the committee of the New York Neurological Society and the New York Academy of Medicine that poliomyelitis is not spread by contact This judgment, apparently, was based on secondary reports It is impossible to know an epidemic disease unless you see it in its whole course in the field It is necessary to go where the disease is and see it, feel it, and smell it—for there is a peculiar and distinct smell to these cases in the acute stage The neurologist who takes the stand that it is not transmitted through contact, and minimizes the value of quarantine surely cannot have been in the field with the acute cases, and assumes by his position a grave responsibility before the community

The so-called prodromal stage, as mentioned by Dr Tilney, is not prodromal it is the disease itself, and the abortive type which Wickman described, is analogous to the first or systemic phase of the disease The paralyses are incidents in the course of an acute general infection

I cannot help reiterating that poliomyelitis is an acute contagious disease and a serious menace to the community The only hold we have on it at present is to treat it as being spread by contact. Unless we try to check immediately the nonparalyzed cases, and healthy contacts who may be carriers of infection from the sick cases so that secretions and excreta cannot be transferred, we shall again in some localities, have the trouble that we had last year This is no time to take the position that it is not a contact disease

Dr. Charles Herrman New York I am a pediatrist but I think the neurologists may have been misunderstood The figures are perfectly true 252 secondary cases occurred in the families that were attacked in New York City That, in itself, is sufficient to show, beyond all doubt, that the disease is communicable If I understood correctly, the neurologists make a distinction between contagious and communicable, and think that people are not infected by the patient but by a person who carries the disease. I do not think they mean that the disease is not communicable, but that the vast majority of cases are caused by carriers

With regard to the percentage of other children exposed in the families in which a case occurred, I would say that I mentioned that 5 per cent of the other children in the families exposed had some symptoms We cannot say definitely that they had a mild attack of poliomyelitis, but they had some symptoms, fever, vomiting, tonsillitis, that might have been due to such an infection. We must assume that a large percentage of these children are practically immune

With regard to adenoids and tonsils, my investigations show that they were not more common in the children with poliomyelitis than in the others Twenty-five per cent of all the children in New York have adenoid vegetations and enlarged tonsils, and in the poliomyelitis cases, the percentage was not perceptibly larger So I do not think that it is so much a question of their presence as of some lack of normal power to neutralize and inactivate the virus of poliomyelitis in certain individuals Why, I do not believe anyone knows, but certain individuals lack that power, which is normal in a large percentage

I believe it should be emphasized that we are not likely to have another large epidemic of the disease within a few years in New York City The figures show that pretty well There were seven thousand undoubted cases in children under 5 years, with distinct paralysis That represents 1 per cent of the children under 5 years in New York City If we assume that an equal number who were exposed had a mild attack, were thus immunized, we would have 2 per cent That is a large percentage of the total number of children under 5 years who are susceptible, and I do not think that it is likely that we shall have another large epidemic here, for some years, at least

Dr La Salle Archambault, Albany, N Y I quite understand the attitude that is taken by Dr Draper The views that I have expressed concerning the pathogenesis of poliomyelitis are so directly opposed to the doctrine prevailing at present that I can see how difficult it must be to accept them without further evidence I did not have an opportunity to go into all the facts that I had hoped to present A point that, in my opinion, cannot be contested, however, is that I have found in the bloodvessels of the Rolandic area, the pons, the medulla, the cervicodorsal cord and the spinal pia, unusual numbers of white cells There were some polymorphonuclears, but most of the cells were lymphocytes and polyblasts, analogous to the infiltrating cells of the central gray matter These sections were seen by other men, and I want to add that my preparations are at the disposal of those interested

There is one point in this connection that I believe has considerable practical bearing If it is true that the virus of poliomyelitis is carried into the cerebrospinal axis through the bloodstream, we should follow up treatment in the same way Reading the very careful reports of the serum treatment of poliomyelitis in New York last summer, I cannot say that I was favorably impressed with the reactions obtained A number of cases did remarkably well, but I do not believe that it was possible to say that the amelioration or recovery was due to the serum in these cases In a large number of instances the patients were made decidedly worse and must have caused considerable anxiety to the attending physician It seems to me that if the hematogenous route represents the path by which the cerebrospinal axis is involved, and I believe that it does, we should give the serum intravenously In that way, much larger quantities can be employed We must remember that the meninges and their bloodvessels are sufficiently disturbed already, and that the introduction of the serum into the subarachnoidean space acts much as an irritant, simply aggravating the condition and perhaps, in some instances, making the case hopeless A better result might be obtained by the intravenous route I would suggest, however, that lumbar puncture be performed before the administration of the serum

Cold Storage—Nothing has been found to indicate that cold storage, under proper operation, has any injurious effect on perishable foods On the contrary, where the best methods of treating respective classes of foods have been determined, as is the case with a large part of the perishables, cold storage has proved its greatest usefulness to mankind Perishable food placed in cold storage in good condition will, when kept under proper conditions, be perfectly sound and wholesome when removed after long periods of time—Fifth Report of Committee on Cold Storage, American Public Health Association, *Am Jour Pub Health,* March, 1917

TREATMENT OF IMPETIGO CONTAGIOSA *

HOWARD MORROW, M D
SAN FRANCISCO

After reading the different articles on impetigo in the standard works on dermatology, one cannot help but being impressed with the general belief on the part of the various authors in the specific action of some form of ammoniated mercury Other parasiticides receive less consideration, and the reader is given to understand that the condition can usually be cured in two or three weeks by the application of the stated therapeutic measure While it is true that the mild forms of the infection are frequently cured in a short period of time, it must not be forgotten that in its severe manifestations, impetigo may persist for weeks before its eradication is effected We should also remember that impetigo of the new-born sometimes terminates fatally, no matter how rational and thorough the treatment might have been So a short summary of the accepted methods of dealing with this by no means harmless disease, and a brief outline of some other procedure not commonly exploited, seem enough to form the subject-matter of a timely paper

As has usually been recommended, the affected parts are frequently anointed with a dilute ammoniated mercury ointment, and when possible these parts should be bandaged However, when the eruption is on the face it is next to impossible to keep the involved areas under cloth dressings, and in order to continue one's vocation it is obviously objectionable to apply grease to the lesions during working hours, especially if these occur during the daytime Unfortunately such drawbacks suffice not only to its partial control, but serve in a very efficient manner to favor the spread of the disease

Schoolchildren with impetigo often attend their classes and mingle with their fellows at play, without their condition being recognized It is only natural that they should thus disseminate their infection among their associates Again adults with impetigo seldom remain away from their work, and many of the male victims continue to be shaved by a barber It is unnecessary to go into details how, under these unfortunate conditions, a widespread transference of the disease not uncommonly occurs As a matter of fact, it may be asserted that in a great majority of cases of impetigo among men the infection has been contracted in barber shops It is therefore no wonder that the laity looks on the disease as "barber's itch," a term which, as is generally conceded by dermatologists, should be restricted to ringworm infection of the beard It should be mentioned, of course, that there are hygienic school rules governing children, as well as health regulations for the barber shops, but the mild or chronic cases frequently escape detection, and they are just as capable of transmitting the infection as the more acute and severe forms of the disease For these reasons it is of great importance to make an early diagnosis and to abort the lesions with all possible speed

For many years aurists have asserted that the best method of treating "pyogenic eczemas" of the ear canal is by the use of some preparation of silver As many of these "pyogenic eczemas" are in reality streptococcic infections treatment of similar infections on the glabrous and hairy skin by silver preparations should give equally satisfactory results and this is actually true

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* Read before the Section on Dermatology at the Sixty Eighth Annual Session of the American Medical Association, New York, June, 1917

Over a considerable number of years it has been our custom to treat impetigo patients by this method and it has proved to be a very efficient therapy By its employment individual lesions in most instances are rapidly aborted and the general course of the disease appreciably shortened The method is as follows The vesicles or pustules are ruptured with gauze, the sodden epithelium which comprised part of the wall is removed and the base of the lesion is thoroughly covered with a silver solution the application of the remedy being made with a swab Where crusts have formed it is usually an indication that the disease is still spreading at the base The crusts should likewise be removed by rough friction with gauze and the underlying areas treated with a silver solution applied in the same way as to the vesicular and pustular bases

I have experimented with different strengths of silver nitrate solution but now confine myself as a routine practice to a 20 per cent preparation When other drugs were added to the silver nitrate solution in order to avoid staining of the skin the value of the remedy was lost And when the colloidal and complex silver salts were employed, the results were just as disappointing

There are two disadvantages to the silver nitrate method of treating impetigo one being the temporary pain which follows its application and the other the formation of a black crust which appears quickly and remains for three or four days These objections, however, should receive little attention especially when one has learned by actual experience of the reliable efficacy of silver nitrate in the treatment of impetigo, and its almost unfailing qualities as an abortive agent in the control of the disease

New lesions can usually be prevented by washing with boric acid solution or with a weak solution of mercuric chlorid Still, the patient should always be examined carefully and often, in order that new lesions may be recognized in their first stages and promptly aborted

It is advisable to apply a dusting powder, preferably one containing ammoniated mercury in the strength of from 6 to 10 per cent, and boric acid powder up to from 15 to 20 per cent When the impetigo is on the uncovered part, even without the silver the powder form of treatment should be selected in preference to a grease Customarily I have applied such a powder after swabbing with silver solution, and order its use by the patient several times daily The most satisfying manner of applying the powder is by means of an insufflator Adults who have the infection on the face should not shave until all active signs of it have disappeared and they should not subject themselves to the irritation of the wind, such as results from motoring in open cars Needless to say, children suffering from impetigo should be restrained from attending school until they are entirely well, and, furthermore, all prophylactic measures should be enforced to prevent others who occupy the same living quarters from acquiring the disease New-born infants should be removed as soon and as completely as possible from victims of impetigo, for they seem not alone very susceptible to the infection but are often gravely affected by it Since that form of impetigo which attacks the new-born differs as a rule widely from the variety of the malady encountered in early youth and in adults, it should receive its own special medical attention Although small vesicles and small pustules, along with slight crust formation may be observed in an impetigo eruption of the new-born, the disease usually tends toward the formation of bullae, which appear with great suddenness, and increase in dimension with almost incredible swiftness occasionally reaching the size of an adult palm in a few days time In these cases ammoniated mercury ointment seldom checks the advancing borders, and instead of a cure being achieved we frequently see the lesions progressing to the formation of enormous flaccid bullae It is the rule for these bullae to rupture their thin covering of epidermis sloughing away, leaving large denuded areas resembling superficial burns The accumulation of sodden epithelium on the diseased skin surface, and of pus, crusts and of greasy detritus, leads to a general pathologic condition which all too often has a fatal ending If these cases are recognized in the beginning, and the lesions aborted with silver further dire results of the infection can usually be avoided It is not infrequently necessary to apply the silver daily to certain portions of the border where the disease has not been stopped in its advance Clothing produces heat and friction with infants, so it is advisable to keep those who have impetigo in a suitably warm room and with as few garments on as possible With only a limited amount of material for forming this statement, exposure of these infants to the direct rays of the sun has seemed to be a distinct help in securing a cure However, it must be emphasized that this form of heliotherapy should not go to the extent of producing an erythema of the unaffected areas of the body

ABSTRACT OF DISCUSSION

Dr John E Lane New Haven, Conn Dr Morrow's paper expresses my own views in regard to the treatment of impetigo As it is frequently used on oozing and crusted surfaces of dirty children with impetigo an ointment is about the worst application that can be made After the surface has been cleaned and nearly dry, it works well In cases covered with crusts and ointments I soften with boric acid solution or petrolatum and then remove the crusts wipe the surface and apply a solution of silver nitrate The surface thus becomes nearly dry, and then a powder is applied In my experience the method is much more rapid and cleanly than that usually employed

In impetigo of the bearded face I have never had good results with ointments In such cases I usually use a weak alcoholic solution of iodin as the stain is less lasting than that from silver nitrate These cases are a little more stubborn but they usually yield fairly promptly under such treatment.

Dr W C Brownson Asheville, N C I have never used the powder but I shall try it. It seems to me anything in the shape of a powder would be apt to substitute one crust for another In my opinion there is little need for treating the ordinary cases of impetigo so actively I have used a modified form of *l'eau d'Alibour* the favorite treatment of Saboraud A modification of his remedy, which does very well, is made up of 1½ grains copper sulphate and 3 grains zinc sulphate to the ounce of camphor water I often start by removing the crusts by a boric acid-starch poultice, and when removed, sop on the solution named several times a day, and its results are usually prompt It is cleanly and I can hardly see how it could be improved on I think the results are fully as good as when stronger applications are used In regard to the use of ammoniated mercury, it is advised by Walker and others to use not more than 5 grains to the ounce This may be used at night, and in the morning it is washed off with soap and water, and then during the day the lotion I spoke of is used

Dr R A McDonnell, New Haven, Conn My opinion is that ammoniated mercury ointment is a specific if rightly applied It should be thoroughly rubbed in with a toothbrush, and some of it left on until the time for the next application. This should be done three times a day I think that there is a distinct advantage in using greasy applications in exudative diseases of the skin, because serum will not mix with grease, and, if the epithelial layers are thoroughly impregnated with salve, then serum has little chance to collect in them Impetigo is a very superficial disease, and these remarks apply pertinently to this disease The type of impetigo represented by pemphigus neonatorum is an entirely different proposition We recently had a little epidemic of this disease in the New Haven Hospital and five patients out of eight died Nothing seemed to check the advance of the infection

Dr Samuel E Sweitzer, Minneapolis I have always thought there were certain definite principles for treating impetigo The crusts and the tops of the little pustules must be removed One can do that by an ointment of ammoniated mercury, and the next time by wiping the lesions they will come away easily These patients are mostly children, and to get them off painlessly is an advantage

I do not believe boric acid is strong enough to stop the transfer of these lesions I use a 10 per cent. ammoniated mercury ointment I do not believe they look so bad as when painted black with something like silver The average case gets well in from five to seven days, in some cases it is a little longer

If we have a circinate lesion, it is a mistake to suppose that ammoniated mercury will do good So I cut off the loose part next to the skin and apply the ointment to the whole surface In the cases in the new-born I have been using a little vaccine and I find it is a big help There is one case in the University Hospital at present The baby was born with the skin off the fingers and numerous bulla soon formed That patient is getting on with staphylococcus vaccine and a little ammoniated mercury

Dr. Everett S Lain, Oklahoma Most dermatologists and practitioners have their own methods of treating impetigo, and all are successful, largely because of nature's immunizing bodies which come to their rescue

I was glad to hear of Dr Morrow's method, inasmuch as it differed from most others, and also to hear of his work in testing the silver salts I believe he reports that the colloidal groups did not give as good results as straight silver nitrate I have often found the colloidal salts of value in secondary infections of carcinomas We have all objected to staining and the pain following applications of silver nitrate My treatment of impetigo, whenever crusts have formed before I see the case, is to apply the usual routine of washing with soap and gauze I do not resort to the brush as that seemed too severe Then I apply ammoniated mercury ointment After the secretions and the scabs are removed, if the patient is deemed able to stand the treatment, I use a 50 per cent. alcoholic solution of salicylic acid This does not stain unless it is repeated This has been of special value in preventing spreading

Dr Harold N Cole, Cleveland As Dr Heimann suggests impetigo is due to streptococci, but if we take cultures in pemphigoid of the new-born we will find it staphylococcic in origin This is often serious if the disease spreads over the body and down to the umbilicus, where it sets up a blood infection

Ointments seem to me to make the cases worse I have not used silver nitrate solution, but I will try it How strong does Dr Morrow use it in infants? I have been using 1 per cent iodin in alcohol, and then a dry dusting powder I always use vaccines, autogenous if possible, otherwise a stock vaccine

Dr Walter J Heimann, New York Impetigo contagiosa is not obstinate It is not dependent on the general principles of susceptibility, in the proper significance of the word There is a local susceptibility in the epidermis, but it is not of a kind that need be controlled by vaccine In the impetigo of Bockhardt the opposite is the case An ordinary case of impetigo contagiosa is much easier to cure, particularly if one uses soap and water followed by the application of a lotion Because of the fact that we are dealing with an acute exudative inflammation of the skin, however, it does not stand grease well The damming-back process indicated by Dr McDonnell's discussion I have not found Consequently I do not use salves in that stage If it is secondary to pediculosis, I find it best to use a shampoo and get off all the crusts by mechanical and other means and paint with a 20 per cent silver nitrate solution (I do not use the 50 per cent solution), and then use mild white precipitate ointment or a 10 per cent balsam of Peru ointment

There are two other groups of cases which deserve special consideration These are the bullous types, in which it is necessary to cause a rupture of the lesions to get antiseptics on the battlefield, so to speak There are two or three ways of opening a bulla One is with a sterile toothpick, or gauze, or even with a toothbrush Then paint the surface of the open bulla with nitrate of silver, and that will produce a cure When the beard is involved, the disease is likely to become follicular, and then I use soap and water and a solution of resorcin in alcohol Instruct the patient to moisten the surface several times a day and to put on at night an ammoniated mercury ointment to keep the skin from getting too dry I find if the patient is not instructed to shave, and he lets the hair grow, the crust mats with the hair, so I tell the patients to shave once a day after softening down the crusts

Dr Howard Morrow, San Francisco I had not mentioned the treatment by boric-starch poultice That is of value occasionally, especially where we have thick crusted lesions

Some one suggested that it would not be advisable to treat with a powder impetigo which was weeping Sometimes there is a slight amount of weeping after the silver is applied, but it is only a few minutes before it is stopped, and then it is advisable to use the powder I think it was Dr Sweitzer who objected to lotions I also dislike lotions, but after the powder is used through the insufflator a few times, it cakes on the skin, and I use a boric acid compress or solution to wash the powder off the parts

In answer to Dr Heimann, I have yet to see a bullous impetigo, either of the adult or of the new-born, in which the bullae could not easily be ruptured by gauze.

In answer to Dr Cole, I use 20 per cent solution of silver nitrate with infants as on adults

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Clinical Examination of Painters—The December, 1916, *Bulletin* of the New York City Department of Health publishes the results of an examination of 289 painters undertaken in the occupational disease clinic. In this series there were forty-seven patients, in all of whom both the clinical evidence and the laboratory findings gave positive evidence of lead poisoning Fifty patients gave marked physical signs of plumbism without laboratory confirmation, twenty-four patients who were apparently free from symptoms were reported from the laboratory as showing either lead in the urine, or stippling of red cells There were twenty-two patients in whom the symptoms alone or in combination with the laboratory findings created doubt as to the existence of lead poisoning One hundred and forty-six cases were negative as to lead poisoning The heaviest incidence of plumbism was found in those who had been in the trade ten years or more A comparatively small number survive as members of the trade after reaching the age of 50 In this series there were eighty-nine abstainers from alcoholic beverages, a surprisingly large number considering the conditions under which painters work, it being often difficult to obtain drinking water A study of the symptoms of lead poisoning was made, which shows that in only ten cases was the lead line observed The hemoglobin estimation and blood pressure findings were of little significance Lead poisoning appeared to have no influence on the Wassermann test

AN ANALYSIS OF FORTY-THREE CASES OF SKIN CANCER*

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Much has been said and written on the subject of skin cancer. Hazen[1] in a recent book has given an ample presentation of the subject. My reason for presenting this analysis of forty-three cases is that I have found that a lamentable lack of knowledge of the dangers of skin cancer still exists as regards both the general public and the average physician.

I have had patients tell me that their family physician told them to leave these lesions alone and, in other instances, I have seen cancer near the eye burned off with caustics and recurrences take place and destroy the eye and endanger life itself.

At the present time, both the medical journals and the newspapers have done good work in the dissemination of knowledge on this subject. It is only by endless repetition, however, that any medical facts are generally made known to the public, and so the endeavor must go on, even at the risk of being tiresome to some of us who have ample information on the subject.

The problem of prevention of skin cancer is, to my mind, more important than the treatment of the disease after it starts, and I will endeavor to show from the analysis of these few cases that a great many could have been easily prevented. This is something that needs to be emphasized in the medical schools, as I have found patients often very anxious to have skin blemishes removed from fear of cancer, and I have often found that they came of their own volition as their physician had told them that the lesion was of no consequence.

Progress has been made, however, and the outlook for the future is brighter and we all can help by insisting on the eradication of any lesion that we know from our experience to be a precancerous condition.

In an analysis of these forty-three cases we find that there were twenty-eight males and fifteen females. This is nearly twice as many in the male as in the female. The ages varied from 27 to 86 years, there were two cases under 30, seven cases under 35, eleven under 50, and thirty-two cases above 50 years. The duration of the disease varied all the way from eight weeks to twenty-five years.

They were all located on the face, neck or ear. The extremities were not involved in this series. Most of the cases were around the nose or on the cheeks, the lower eyelid was involved twice, the temple twice, the lower lip four times. Of the lower lip cases, two were due to smoking, one to a cold-sore and one to seborrheic keratosis. We all know the malignancy of cancer of the lower lip, but I have found that cases involving the inner canthus of the eye are very hard to cure, and if they involve the orbit, the difficulties of treatment are greatly increased.

ETIOLOGY

From the frequency of the occurrence of skin cancer on the exposed surfaces of the body, one is led to believe that the rays of the sun may have something to do with its production, or it may be only on account of the better opportunity for irritation to occur.

Fourteen of these forty-three cases were due to seborrheic keratoses. This is about 30 per cent, and is the most frequent cause in this series.

Acute injury, such as a razor cut, or a scratch, or being hit with a stick, was responsible for seven cases, and three cases were directly due to pinching out a blackhead with the fingers. This gives ten cases due to one acute injury and is about 25 per cent of the total. Most writers mention trauma as a cause, the occurrence of repeated slight injuries, but do not emphasize the single injury. I was greatly surprised to find this large percentage on analyzing these cases.

Other causes were warts in three cases, pimples five cases, smoking two cases, both on the lower lip, cold-sore two cases, scaly spot three cases, irritation of nose-glasses one case, irritation of alkali dust one case on lower eyelid, angioma one case, red spot one case. Every one of these cases then was due to either one acute injury or to a precancerous dermatosis or to chronic irritation.

I am certain that in many cases we must have the added factor of chronic irritation. Chronic irritation alone can also cause skin cancer. This has long been known and is shown in this series by the two cases involving the lower lip due to smoking, and by the eyelid involvement due to chronic irritation of alkali dust and rubbing.

The high percentage of cases due to an acute injury would lead one to suspect either an infectious origin or a displacement of cells at the time of injury.

In patients with seborrheic keratoses, I think that the formation of skin cancer is possibly aided by the irritation of sunlight, scratching the lesions and picking off the crusts. This might explain the cause of the occurrence of skin cancer in these patients only on the exposed surfaces. We often see seborrheic keratoses on the body, but I never have seen a skin cancer on the body caused by it. However, on examining a very small beginning epithelioma due to this cause, I often have been led to believe that the pressure of the heaped-up scales gradually caused enough chronic irritation in the underlying cells to make them undergo cancerous degeneration and form a little ulcer with the characteristic hard edges.

There were seven patients with multiple lesions, and of these six were due to seborrheic keratoses and the other was due to a scaly spot.

The treatment given in these cases was radium. Thirty-four patients are cured to date, four are still under observation and should result in cures, two were benefited but are not well yet, two had recurrences and one patient was directly stimulated. Of the two that recurred, one involved the neck and was previously treated with the Roentgen ray but not entirely healed. This patient has done well under radium, but is not completely cured and, at present, I am trying desiccation on him.

The second patient also had received Roentgen treatment, in this instance extending over a period of nearly three years. After one course of radium treatment the patient disappeared for six months, and the disease, which previously was on the bridge of the nose, had spread so that it involved the frontal sinus. This patient had in previous years been operated on twice and the lesion had recurred both times.

The case that was directly stimulated involved the malar bone and the amount of radium used was too small to be effective It was necessary to resort to surgery and do a wide operation, and Roentgen rays were used afterward This patient writes me that he is now apparently well This was a prickle cell tumor

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* Read before the Section on Dermatology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

[1] Hazen, H. H.: Skin Cancer, St. Louis, C. V. Mosby, 1916.

CONCLUSIONS

The most important part of the cancer problem is prevention From this analysis, all but the ten cases due to an acute injury could have been prevented, as thirty-three were due to a precancerous dermatosis or to a chronic irritation Too much emphasis cannot, therefore, be laid on the early removal of all lesions on the face and hands, especially such as seborrheic keratoses, warts, moles, pimples, angiomas, etc I assume that the term "pimple," as given by the patients, must have meant some small fibrous tumor This

SYNOPSIS OF FORTY-THREE CASES OF SKIN CANCER

Case	Sex*	Age	Location	Duration	Etiology	Treatment	Results	Recurrences
1	♂	81	Neck under chin	10-12 yrs	Started as pimple, was cut and irritated	Radium	Good	Yes
2	♀	53	Side of nose	12 yrs	Seborrheic keratosis	Radium	Cured	No
3	♂	62	Side of nose	4 yrs	Seborrheic keratosis and had been twice cauterized with silver nitrate stick	Radium	Cured	No
4	♀	69	Upper lip	15 mos	Started like a cold sore and did not heal	Radium	Cured	No
5	♂	77	Ala of nose and l cheek	1 yr	Pimple came on nose after auto accident Lesion did not heal but grew rapidly and destroyed ala of nose	Radium	Cured	No
6	♀	78	Large area on l cheek	18 yrs	Seborrheic keratosis	Radium	Cured	No
7	♂	41	Right cheek	18 mos	Razor cut Did not heal	Radium	Cured	No
8	♂	85	Left malar eminence	Several years	Seborrheic keratosis	Radium	Cured	No
9	♀	84	Bridge of nose	25 yrs	Began as pimple Operated on twice and recurred Roentgen rayed off and on for three years	Radium	Poor	Yes
10	♂	59	Side of nose	1 yr	Seborrheic keratosis	Radium	Cured	No
11	♂	65	Side of nose	2½ yrs	Began from squeezing a blackhead	Radium	Cured	No
12	♂	27	Lower right eyelid	4 yrs	Alkali dust irritated eyes and produced conjunctivitis Rubbed and irritated and finally began to ulcerate	Radium	Cured	No
13	♂	71	Left cheek	Several years	Seborrheic keratosis	Radium	Cured	No
14	♀	53	Left cheek	2 yrs	Seborrheic keratosis	Radium	Cured	No
15	♂	30	Lower lip	2 yrs	Smoked pipe Had a white spot which later turned into a sore and did not heal	Radium	Cured	No
16	♂	57	Left cheek	18 mos	Began as red spot like dilated blood vessel Was treated with electric needle after which it started to grow and formed an ulcer	Radium	Cured	No
17	♂	75	Left malar area	2 yrs	Seborrheic keratosis	Radium	Stimulated lesion	
18	♂	35	Median line of nose	15 yrs	Started from injury Sore resulted and was irritated by patient Has been frozen with CO_2, curetted and Roentgen rayed Biopsy Prickle celled	Radium	Good	Not absolutely well yet
19	♀	32	Right temple	8 yrs	Started as red spot, then grew and ulcer formed Was cut out and skin grafted Recurred Roentgen rayed for a long time	Radium	Good	Not absolutely well yet
20	♀	56	Nose	20 yrs	Began as red scaly spot after five years began to ulcerate	Radium	Cured	No
21	♂	58	Nose	5 yrs	Began as red pimple later ulcerated Was burned off a couple of times Nose glasses irritated it	Radium	Cured	No
22	♂	66	Left side of cheek	1 yr	Seborrheic keratosis	Radium	Cured	No
23	♂	47	On cheek in front of r ear	3 mos	Cut while shaving Did not heal and ulcer formed	Radium	Cured	No
24	♀	66	End of nose	4 yrs	Began with a scratch	Radium	Cured	No
25	♀	35	Left naso labial fold	3 yrs	Began with a scratch	Radium	Cured	No
26	♂	56	Upper part of left eyelid	10 yrs	Started from slight injury Skin cracked and ulcer formed	Radium	Cured	No
27	♂	66	Lower lip	8 wks	Smoked pipe Had a hyperkeratosis and leukoplakia Ulcer formed	Radium	Cured	No
28	♀	66	Nose near left ear	2 yrs	Irritation of nose glasses caused sore which failed to heal	Radium	Cured	No
29	♀	55	Right lower eye lid and r cheek	10 yrs	Started from injury Stick hit patient and ulcer formed	Radium	Cured	No
30	♂	41	Right cheek near eye	2 yrs	Started from small pimple	Radium	Cured	No
31	♂	45	Right side of nose	3½ yrs	Started from wart Burnt off twice	Radium	Cured	No
32	♂	32	Left side of nose	2 yrs	Started from smooth wart or fibroma Burnt with silver nitrate twice and recurred	Radium	Cured	No
33	♂	29	Lower lip	1½ yrs	Started from cold sore Ulcer did not heal	Radium	Cured	No
34	♂	63	Right temple	5 yrs	Started as small ulcer May have been seborrheic keratosis	Radium	Cured	No
35	♀	74	Left cheek near nose	3 yrs	Started from squeezing a blackhead A small tumor formed which grew slowly	Radium	Cured	No
36	♂	57	Left side of nose and front of left ear	6 yrs	Seborrheic keratosis	Radium	Under treatment	
37	♂	74	Near canthus of right eye	10 mos	Started from scaly spot probably seborrheic keratosis	Radium	Under treatment	
38	♀	53	Right cheek and right lower eyelid	20 yrs	Started from scratching a scaly spot which itched Small ulcer formed which gradually spread growing rapidly last few mos	Radium	Cured	No
39	♂	86	Left naso labial fold	6 yrs	Seborrheic keratosis	Radium	Cured	No
40	♂	58	Upper part right eyelid	10 yrs	Started from a wart	Radium	Cured	No
41	♂	57	Lower side of nose	10-15 yrs	Started with squeezing a blackhead grew slowly, was burned off with silver several times	Radium	Cured	No
42	♀	66	Left side of end of nose	4 yrs	Began as scaly spot Patient has seborrheic keratosis	Radium	Under treatment	
43	♀	72	Right cheek near nose	12 yrs	Began as scaly spot Patient has seborrheic keratosis	Radium	Under treatment	

* In this column ♂ denotes male and ♀ female

In Cases 1 13, 17, 20 22, 36 and 39, more than one lesion were present removal is particularly important for people over 50 years of age as that is when the majority of these cases begin

The cases due to injury could not have been prevented and present a puzzling problem Skin cancer should be suspected in any ulcer of the face or extremities which does not heal readily under ordinary treatment If skin cancer exists it should be treated most energetically either by excision intensive Roentgen ray or radium Treatment should be instituted early while the lesions are small and before extensive destruction has resulted

ABSTRACT OF DISCUSSION

Dr. Fred Wise, New York In the concluding remarks of his paper Dr Sweitzer laid especial stress on the question of prophylaxis in cutaneous cancer This is a point which is invariably emphasized by all who are interested in the subject and the physician is ever cautioned to regard with suspicion any stubborn growth of the integument especially in adults and elderly people Cautioning physicians is very good as far as it goes but I think that very little is done in the way of educating the lay public The magazine sections of the Sunday papers instead of dealing with some of the popular minor ailments such as freckles superfluous hair etc would do well to devote some space to teaching the lay public the danger of neglecting persistent pigmented and warty growths of the skin which show signs of degeneration or proliferation In the larger cities the children of high school age should be taught all about the subject of skin cancer Children between 16 and 20 years are at an age when these lessons would be deeply impressed on their minds and information of this character would eventually prove to be an exceedingly valuable aid in the prophylaxis of cancer

Dr Everett S Lain Oklahoma City Dr Sweitzer has given a good classification and as he said he has repeated that oft given warning relative to early treatment of skin cancer and of precancerous conditions I do not think however that this can be emphasized too much nor does any one realize the effect of removal of early lesions more than do dermatologists

I was interested in the classification and while there were but forty-one cases yet that gives a fair degree of knowledge of the usual run of skin cancers

Dr Sweitzer's experience corresponds closely with my own in the summary which I made in 1915 of about 250 cases which perhaps some of you may remember having read in reprints or in our *Oklahoma State Medical Journal* This summary of the forty-one cases corresponds with the larger number I gave in 1915 except that I never found epithelioma of the inner canthus of the eye any more stubborn than when located externally The inner canthus condition is doubtless caused by our attempts to remove dust and other foreign particles from the eye I find that in this location the lesion yields to the Roentgen ray and radium equally with those located externally

As regards the age of the patient we formerly thought it was almost impossible for anyone under 40 years of age to have the epithelial type of cancer I have a record of three patients under 30 one 22 and another 23 and all typical cases of epithelioma one near the lower eyelid on one side and the other on the lower lip They have yielded to treatment.

One thing most of us have observed (which is rather contradictory to the usual course of other diseases) is that after 65 or 70 all epithelial cancers in my experience yield more readily than the same types in persons of middle age

As regards race, we expect in the Irish who have fair, red tender skins epithelioma to be more common than in others That is also true of fair Germans, a large percentage of my cases have been of the Irish or fair German type. The reverse is also true, dark-skinned people, as pointed out by Hazen in the negro, and the full-blooded Indians, to whom I called attention in my paper in 1913 before this section, are not subject to skin cancers I have yet to see my first case in an Indian I have seen but few cancers in the negro

Dr Wise thought it would be a good thing to have lectures in the public schools in regard to prevention of skin lesions This progress I am pleased to say has been made in the high school of Oklahoma City For two years we have had medical lectures before the domestic science part of the graduating class Instruction is given on the prevention of skin lesions and the nursing and care which may be given by ordinary measures

Dr Walter J Heimann New York What evidence is there that cancer may be caused by acute conditions known to us by the name of "cold sores"?

Dr Charles J Shepard Columbus Ohio Dr Sweitzer mentioned epithelioma following smoking I wish to report a case I saw on the lip of a carpenter, which apparently followed the holding in his mouth of a lead pencil which he used in his work It was probably covered with dirt, and doing that day in and day out, had apparently produced that result

Dr J C Bateson Scranton Pa The essayist has brought out his ideas in a very simple way I should like to call attention to the cause as being attributed to traumatism or some condition such as a wart or mole I do not believe that these are primary causes but furnish suitable locations for development

It is evident that some steps should be taken to inform the public that all malformations should be looked after carefully by the physician to prevent the development of skin cancer Not all warts or moles produce cancers but if they are causing any disturbance I think it advisable to remove *them at once* We also know that the public fears the knife and think that warts should be left alone

Now as to the quack who uses pastes and local escharotics I know many of their patients even after the use of the knife have been cured and I too have treated like cases with simple escharotics such as acetic acid zinc chlorid or some combination and have brought about beautiful results If we know how to use escharotics with tact and skill, we need not relegate them to the quack

Dr Frederick Harris Chicago The best way to destroy cancer that I know of is by means of a red hot soldering iron This will do away with the cancer, so will arsenic, zinc chlorid and trichloracetic acid, but as dermatologists we have better methods than these of treating cancer of the skin

Dr Harold N Cole, Cleveland I concur in the suggestions but I think the Association should be very careful about recommending anything of that sort

Dr John E Lane, New Haven Conn The treatments recommended by the speaker excision, Roentgen ray and radium are all that are to be recommended in the treatment of cancer and for ordinary use excision should have the preference In selected cases in proper hands radium and the Roentgen ray are most valuable but as used by a great many operators—I agree with a well known dermatologist that there are more crimes committed in the name of the Roentgen ray than ever were committed in the name of liberty" One of the most frequent reasons given for using the Roentgen ray for the removal of a cancer is that the cancer is small To my mind that is no indication for not using the knife At the age at which most skin cancers appear, a small one can be cut out, leaving a scar that in a few weeks can hardly be distinguished from a wrinkle It is done more quickly more surely and with less expense to the patient than in any other way and if properly done the cosmetic results are as good In some locations the Roentgen ray or radium is the method of choice As far as escharotics, acids and other methods of that sort are concerned, I believe that the time has long since gone by to mention them even for condemnation Certainly it is past my comprehension how any physician can mention them for any other reason than total condemnation They have *no place* at all in medicine of the present day

Dr. Louis B Mount Albany, N Y One case I recall, that of a prickle-cell epithelioma of the lower lip in a man 26 years old Six years previously, that is, at the age of 20, he was in a fight and was struck on the lower lip From that time on he had a small bluish discoloration there, which was exactly the spot on which the epithelioma developed I disagree with the last speaker's statement that the cosmetic results of surgery are better than those obtained with radium or the Roentgen ray

Dr James M King, Nashville, Tenn I had one patient who began to develop an epithelioma in the right ear at the age of 16, confirmed with the microscope When I saw the patient he was 19 years of age, and the growth covered nearly the entire ear Later he developed a lesion of the nose and one on the chin, that was at the age of 21 or 22

In reference to the point of cancer resulting from a traumatism, I had one case resulting from a wasp's sting in a mole When I saw the patient the lesion was about the size of a quarter It was evidently a cancer I treated the patient with the Roentgen ray and it gave as good a result as I could wish Another case was in a patient who cut his lip while eating an apple, death followed from cancer starting in the wound after two or three years' treatment

In reference to treatment of cancer, I think the main point to keep in mind is the pathology of the case and the size of the lesion In the case of a small lesion I would treat with the Roentgen ray I would be sure of getting a better cosmetic result with that, and as permanent a result as by any other means If it were a larger growth, I would use my judgment as to whether excision and Roentgen ray or Roentgen ray alone was better treatment. I do not advocate pastes Excision with the electrocautery is a means which I prefer above all others, followed by the Roentgen ray in massive doses

Dr Franklin W Cregor Indianapolis It seems to me that when we find an explanation for disturbed metabolism which the colloidal chemists are studying, we will know more about how best to attack cancer We know some cancers metastasize while others do not

As to treatment of cancer, the means that will remove all of the pathologic tissues most completely with the least amount of trauma and with the best cosmetic effects is the treatment to be employed I have had some splendid results from surgery and some good results from pastes, and have had some splendid results from the Roentgen ray, and I am going to continue using all of them

Dr Henry H Hazen, Washington, D C I want to touch a few high spots concerning cancer First, we must differentiate between prickle-cell and basal-cell cancer Prickle-cell cancer usually invades the neighboring lymph nodes, and the problem is the same as in cancer of the breast Now, if one gets a patient early, before a clinical diagnosis is possible, and uses the Roentgen ray or caustic, one cannot tell whether one is dealing with prickle-cell or basal-cell cancer It is always necessary to know, for that gives the clew to treatment Diagnosis in the case of prickle-cell cancer must be made early In dealing with cancer of the lip, if the glands are definitely involved at the time of operation we know that the patient does not have the chance for life that he has before they are clinically involved The glands should be cleaned out before they show any change

As to treatment, let me give a few statistics Last winter I studied about 150 of Dr Bloodgood's cases of basal-cell cancer Of the cases which could be traced up for the requisite number of years, 86 or 87 per cent. of patients who could be operated on, were definitely cured Dr McKee, in an excellent paper read in Cincinnati last month, found that the Roentgen ray cured nearly *the same percentage* of cases in a series of about the same size, so we have some justification for the claim that the *Roentgen ray* is good Of course we must remember that the Roentgen-ray work was done by an extremely skilful radiologist, and also that the surgery was done by very competent surgeons I *personally* believe, as Dr Lane said, that there are many crimes committed in the name of Roentgen ray I think many people use radium who do not know anything about it I have had cases in which the growth was simply stimulated by it, instead of destroyed, and I fear lest some men, using radium in *too small* quantities, do more harm than good

As far as caustics are concerned, I do not see how any man with regard for the feelings of his patients will use caustics in preference to the Roentgen ray No patient will ever elect the second use of a caustic paste unless he be a candidate for martyrdom Of all caustics the use of the actual cautery, with either a local or general anesthetic, is the only one really fit for use It gives *many* cures, *and the* cosmetic results are not as bad as many think

Dr C Augustus Simpson, Washington, D C I agree with the other speakers that the use of small amounts of radium may not destroy, but simply stimulate, the growth of skin cancers I also would like to apply the same statement to many of the Roentgen-ray equipments used by dermatologists I *am sorry* to say that I find many well known dermatologists treating skin cancers with the cheap, little Roentgen-ray machines that do just as much harm and just as little good as an insufficient amount of radium It is just as unreasonable and harmful to attempt to cure these lesions with a weak and inferior outfit as it is to attempt the same end with $300 or $400 worth of radium In both instances the growth is more often stimulated than destroyed

In regard to prickle-cell carcinoma, I will repeat what we have known for some years Dr Pusey's statistics relating to this lesion when located on the upper lip show that they are as amenable to Roentgen-ray therapy as basal-cell carcinoma Naturally, if the glands are involved it is a case for surgery, to be followed by the Roentgen ray

I do not think it is necessary to do a biopsy on every case of skin cancer by any means If a microscopic examination seems necessary, remove the entire growth and then section it We must remember it is a cure the patient seeks and pays for, and not statistics and a diagnosis A biopsy and Roentgen-ray treatment on the same lesion seem to me to be inconsistent

Dr Samuel E Sweitzer, Minneapolis I do not know the etiology of skin cancer—I should have said, the etiologic factors Concerning the question of acute injury, I should say that of these patients, one gave the history of having been chopping wood, when a stick flew up and hit her, an ulcer formed and an epithelioma on the upper lid resulted The sister of another woman gave her a little scratch, there was no defect there previously I saw her within two months and she had an epithelioma on the side of the nose In the case of a man with an eruption on the lower lip, he said it was a cold sore After the cold sore had disappeared the lip did not heal and he had an epithelioma I simply brought that out in the history taking The only one I saw was in the case of a business man who, while shaving himself, made one single cut near the ear He came to me in a few weeks with a tiny epithelioma with hard edges Precancerous dermatosis is something which I think should be removed before the lesion starts, if possible

In giving my treatment I said First excision, then Roentgen ray, and then radium I use the radium but I do not insist on others doing it These lesions were all on the face and ears, in places which would show the results of the therapy I am sure excision would leave more scar than I got by the means I used I have had a number of patients who have had recurrences after excision I agree with Dr Hazen that it is preferable to excise in the prickle-cell cases and treat with radium afterwards It must be borne in mind that the treatment varies in different hands

Scarcity of Medicinal Plants—The *Paris Medical* remarks that it does not at present advocate cultivating medicinal plants as this takes time and skill But it does advocate collecting in the woods and fields the medicinal herbs now growing wild, or in gardens It gives a list of plants that could be thus collected describing their characteristics and habitat, the methods for drying and otherwise preparing them and the seasons when each should be collected The necessity for extreme care not to allow the herbs to get mixed is emphasized, as many of the available plants are highly poisonous Among these are mentioned aconite, belladonna, digitalis datura, hyoscyamus and Solanum nigrum

SANITATION IN THE TRENCHES

CHAMPE CARTER McCULLOCH M D
Lieutenant Colonel United States Army Professor of Military Hygiene
Army Medical School

WASHINGTON, D C.

(Concluded from page 87)

V THE PREVENTION OF SPECIAL DISEASES

We have in the army in addition to the practice of the general sanitation of the troops in regard to food and water, conservancy, personal habits, etc , often to concern ourselves with efforts toward the prevention of certain diseases common in military life some of them especially likely to occur under particular conditions of environment Each camp, each war and each climate has had its own individual situation in this respect to be studied and handled by the military sanitarian The European war, like the others, has developed its own characteristic liability to particular diseases

Let us look for a moment at the development of the war in regard to a few of the most important and interesting of these diseases They are no doubt familiar to most physicians, through the reading of the current medical journals, but for the sake of completeness I shall consider them briefly here

In the consideration of the prevention of diseases in war, two points, always important in the study of disease but especially so in military life, ought to be emphasized at the start These are

1 *Accurate Diagnosis* —This statement at first glance would seem to be a sort of medical truism and unnecessary to repeat. However, when one recalls that in 1898, in our Spanish war, the doctors mistook a large proportion of the typhoid fever for malaria, with the result of great sanitary disaster, it seems just as well to bring it up again in this connection No doubt we shall have better facilities for diagnosis in this war The British have developed the field laboratory idea in a practical way Before billeting troops in new areas or occupying ground recently captured from the enemy, they send out traveling motor laboratories in advance of the troops These have been found necessary, especially on account of the German practice of poisoning wells Metallic poisons are tested for and the water examined chemically and bacteriologically for gross pollution

2 *Correct Statistics* —For good preventive work, the army sanitarian must have reliable information as to the incidence of the various infectious diseases, the numbers of sick, and the geographic distribution in camps, regiments, etc Statistics, indeed, are the necessary foundation for all effective sanitary work However, the importance of this feature of the work is not always realized by the neophyte in practical sanitation It affords a good example of the necessity of having experienced medicomilitary administrators in control of medical department affairs, and of the need of special training along these lines for recently appointed medical officers Paper work and "red tape" are a great nuisance in the army, especially to new men, and ought to be cut down as far as possible A certain amount of bookkeeping, however, is absolutely essential here, as in all well conducted business affairs in civil life As another important example of this necessity, it should be realized that the enormous matter of the pensions that succeed a big war, or any large enrolment of men in the military service, even without fighting, has its foundation stone in the medical records of the period in question Justice, both to the individual soldier and to his family on the one hand, and to succeeding generations of our tax-paying descendants on the other absolutely requires the most intelligent and painstaking care in the preparation of medical records As good sanitary work may by prevention and elimination of epidemics, forestall the necessity for tens of thousands of pension claims, so also good medical administration may by prompt removal of wounded from the battle front, and quick return of well handled soldiers to the firing line, aid the military commander, as much as any other factor, in winning his country's battles Our military men have not always recognized this fact, but I believe that at least in the regular army they are fast coming to appreciate the immense value to their work of the competent medical staff officer Lord Northcliffe[5] has written in a most complimentary way of the administrative work of the Royal Army Medical Corps in this war We learn from Colonel Goodwin that the British line officers now follow implicitly the sanitary advice of their medical staff a consummation devoutly to be wished for in the new American army

IMPORTANT DISEASE PROBLEMS

Among the more important disease problems of the present war are those afforded by

1 *Typhoid and Paratyphoid Fevers* —The practice of compulsory antityphoid vaccination has doubtless solved successfully for us the formerly serious question of typhoid fever in our army camps The British have had some trouble in the present war owing to the fact that vaccination is voluntary in their army Fortunately, however, owing to careful sanitation, the disease did not make great inroads on their fighting strength

The place of typhoid as a military problem has now been taken for us by paratyphoid fever Many of the milder cases diagnosed as typhoid fever in 1898 were no doubt paratyphoid infections, differentiation between the two diseases not having been made at that early date by the practicing physician In fact, paratyphoid as a distinct disease entity was not known at all until 1896, when it was announced by Achard and Bensaude[6] Glimmerings of the truth had, indeed been seen earlier Osler's statement of his belief that there were undifferentiated continued fevers in the South was no doubt a stimulus to the army surgeons who, especially in Texas, made observations in this connection Col William B Davis noted at Fort Clark, Texas, in 1892, "a hybrid between typhoid and malaria," and in 1894 I[7] described the symptomatology of a continued fever noted at various border posts, which I tried to differentiate from typhoid We called this "Texas fever" in default of a better name, and I was inclined at that time, following Guiteras, to regard it as of thermic etiology I was mistaken in this, and Davis made a better guess I have no doubt, at present, that the disease observed in Texas was what we now call paratyphoid fever though, doubtless from imperfect observation I missed the "rose spots," which it seems should be found in at least 50 per cent of cases of paratyphoid

Reverting to present conditions, it seems that inoculation with a mixed vaccine of paratyphoid, types A and B, has prophylactic value against the disease In fact, this measure has been used successfully both in Europe and in our camps on the Mexican border, where paratyphoid has recently been found to exist bacteriologically as well as clinically Our troops in this war will therefore doubtless be vaccinated against paratyphoid fever as well as against typhoid There is a rather severe reaction after inoculation with the paratyphoid B strain, but the British experience is that this is not serious enough to counteract its great value as a prophylactic

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[5] Saturday Evening Post Philadelphia April 28 1917
[6] Achard C and Bensaude R Bull et mém Soc med d hop de Paris 1896 pp 821 833
[7] McCulloch C C Rep Surg Gen U S Army Washington D C 1894 pp 52 58

The other intestinal infections, besides the continued fevers, are at present handled in a preventive way only by the ordinary methods of camp hygiene Possibly something practical in a specific way may result in the future from the prophylactic administration of emetin in amebic dysentery and the development of the Japanese idea of vaccine or serum prophylaxis of the bacillary form, though it has not up to the present It seems to me that this question of bacillary dysentery offers the best and most to be desired field for future research and experiment in preventive medicine, in connection with the needs of the army If intestinal diseases could be excluded, army sanitation would be, to speak in the vernacular, almost "a cinch" It is worthy of note in this connection that raw vegetables seemed in the Philippines a potent means of the conveyance of dysentery and other intestinal diseases

2 *Tetanus*—This clinically hopeless and distressing affection gave rise to much trouble and mortality among the wounded in the early period of the war It was found to be much more extensively present in the thickly settled areas, such as the Champagne district in France, than in more sparsely inhabited places—a question of soil pollution It will suffice to say in this connection that a completely adequate solution of the tetanus problem has now been found All victims of wounds of whatever character, simple scratches included, are given at the earliest possible moment after the receipt of the wound a prophylactic subcutaneous injection of 500 U S Army units of tetanus antitoxin contained in about 3 c c of horse serum, in the case of severe wounds, a second dose of the same strength is given on arrival at the base hospital The first injection is given preferably at a dressing station or field ambulance, as soon as possible after removal of the wounded man from the firing line When given in the small doses of serum stated above, the danger of anaphylaxis from the second or succeeding injections is negligible This measure has entirely controlled the former troublesome situation, and tetanus is no longer feared by the surgeon

3 *Infection with Gas-Forming Bacilli*—This unpleasant and often dangerous complication of wounds, also owing to soil infection in the thickly populated and agriculturally worked-over sections of the battlefields of Belgium and France, has given rise to most serious trouble Most of these infections are due to the *Bacillus aerogenes-capsulatus* of Welch, usually called, by the British, *B perfringens* About the only means available to us in prophylaxis is the attempt to minimize the influence of the predisposing causes of gas cellulitis or gas gangrene These causes are the too tight bandaging of the limb, the too infrequent changing of dressings, and the lack of adequate drainage of wounds I understand that an antitoxin has just been prepared for this bacillus Let us hope that it will prove to have prophylactic as well as curative value This is a surgical rather than a medical or hygienic matter, but it seems worthy of note in this place

4 *"Trench Foot" and Frostbite*—This particular effect of prolonged exposure to the cold and wet on dependent limbs had not been observed before the present war—certainly not on a large scale The symptoms, speaking generally, rather closely resemble those of a preliminary peripheral neuritis, succeeded in severe or improperly treated cases by pressure gangrene, the successive pathologic stages being in the latter case, first, stasis, second, exudation, and third, gangrene Rational measures of prophylaxis have been found to be

(*a*) Drainage of the trenches by the military engineers, or, this being impracticable, the raising of the foot level in the trenches by fascines of brushwood

(*b*) The thorough rubbing into the feet and legs of whale oil or antifrostbite grease

(*c*) The wearing of long rubber boots In any case the avoidance of pressure by tight shoes or puttees The socks should be kept dry (by greasing the shoes) and changed daily

(*d*) Keeping the legs elevated while resting, and the avoidance of the sitting posture in sleeping

(*e*) Keeping up the physical condition of the soldiers by proper nourishment and warmth (as far as possible) and the avoidance of fatigue Basil Hughes recommends the frequent use of hot soup and also the rum ration in selected cases

Dampness in gun emplacements is a fertile cause of bronchitic and rheumatic affections, and should be obviated by care in construction Water should be drained to the outside of the "cave," rather than under the floor, or it should be periodically pumped out Walls are made double and filled with sand or brushwood and iron sheathing is incorporated in the earth covering of the emplacement

5 *Trench Fever*—This disease is another of the developments of the peculiar environmental conditions of the war in Europe Briefly, the symptoms are those of a relapsing pyrexia extending over a time varying from a few days to several weeks, usually coming on suddenly with headache and pain in the back and legs, and having no specially characteristic features beyond these and painful, tender shins It thus resembles the European relapsing fever, though as yet no spirochetes have been found in the blood Suspicion points to its conveyance by the body louse, and rational prophylaxis would therefore point, as in typhus fever, to measures chiefly directed against these vermin—to isolation of patients, the disinfection of clothing and the protection against lice of the attendants on the sick The internal administration of quinin has been recently suggested as a prophylactic in typhus fever

6 *Gas Poisoning*—This remarkable German contribution to warfare was a great surprise to the Allies when first sprung on them, and a great many men were "gassed" in the early stages of its employment with distressing and often fatal results, generally due to asphyxia in those not killed at once by the poison Prevention was quickly stimulated, however, and gas masks and gas helmets were devised which, saturated with certain chemicals, served to neutralize or nullify the bad effects both of the "shell" and "drift" gases used by the enemy It is hardly worth while to speculate on the chemical composition of the various gases and their antidotes, as the different armies have vied with each other in their production, and keep them as strict military secrets It suffices for our present

purposes to know that all soldiers in the trenches are furnished with the proper masks and taught how and when to use them and that at present it has resulted that the gas attacks are no longer feared and seldom do any really serious damage

7 *Cerebrospinal Fever*—Outbreaks of this rather mysterious affection are quite common in army camps Infectibility though it appears to be slight is not negligible and it seems probable from later experience that owing to defective knowledge of its means of spreading we have not perhaps in the past been quite so strenuous in our prophylactic measures as we should have been Today, whether rightly or wrongly it is difficult to say we think it advisable to act on the carrier theory of the propagation of the disease Adequate ventilation appears to be essential We now isolate patients and contacts as far as possible examining the latter bacteriologically to try to determine whether or not they may be possible carriers we disinfect bedding and other fomites we destroy food and waste matter in infected premises The throats of carriers are swabbed with 3 per cent iodin in glycerin or some equivalent solution or spray is used as an alternative As it is thought possible that flies may act as vectors they and their breeding places are attacked *secundum artem* Munson has written convincingly in regard to the prevention of the spread of diseases conveyed by means of the secretions of the nose and throat taking measles as a text He emphasizes the importance of ventilation of fresh air and of sunshine I am also inclined to follow Wells of Chicago who says that pneumonia (and other respiratory infectious diseases) could be largely controlled by the popularization of the use of the pocket handkerchief that is, holding it over the nose and mouth whenever sneezing or coughing This plan does not seem impossible of realization when we consider the success of the educational campaign of recent years against promiscuous expectoration

8 *Malaria*—Owing to the ubiquitous nature of the *Anopheles* mosquito troops in the field are in most countries exposed at times to malarial infection This, while not usually dangerous to life in temperate climates, can nevertheless by its effect on the sick reports often become quite troublesome to armies in campaign It behooves us, therefore, to be awake to the possibility, and in malarious locations, to employ the accepted methods of prophylaxis The temporary nature of army occupation makes it generally impossible to carry out all the painstaking methods that were employed, for instance, at Panama still, a great deal can often be done by simple and easily employed means of prevention The use of the mosquito bar and head net at night (with at least eighteen meshes to the inch) should be employed in camps liable to malarial infection, small pools should be filled in and larger collections of water carefully oiled weekly by spraying (1 ounce of kerosene to each 16 square feet of surface), or treated continuously by a drip can, water tanks should be screened, and old tins, bottles, etc, looked after The application, on exposed parts of the body, of the essential oils gives some help, though not reliable alone, and something may be done by swatting" adults locally The administration of 6 grains of quinin daily proved to be a prophylactic of value in the antimalarial work on the Panama Canal

Owing to our adequate modern methods of quarantine, *cholera* and *plague* formerly so much dreaded in camps and wars, are not at all likely to be introduced on the western battle front If they should by any chance get a foothold, the resulting conditions would most likely prove to be serious The crowding, on the one hand and on the other the enormous numbers of rats that are present in the trenches and billets would make the proper prophylactic efforts very difficult of execution In the event of the introduction of either of these diseases, I am inclined to believe that the sanitary authorities would promptly try the effect of prophylactic vaccination for the reason that while the efficacy of this procedure is not fully proved on a large scale, still it has given promise of good results In addition the already well established preventive methods of control would, of course, be employed as they have been so often and so successfully in both hemispheres by the officers of our distinguished Public Health Service

CONCLUSION

I wish to repeat that this sketch is not by any means intended to cover all the ground of military medicine and all the diseases of camps and armies, this could not be done indeed in the space of any journal article, however concise I have, however tried to outline briefly the essential points in the prophylaxis of the most frequent and important diseases that we are likely to encounter on the western front in Europe particularly those that seem to be in some respects newer developments of the peculiar environmental conditions of the present war

Even this ' indication has, I am too keenly aware, been imperfectly handled I shall be amply satisfied, however, if I am successful in arousing the interest of some of our prospective young medical officers in the sanitary aspects of the war and in stimulating them to further study of the literature (cited above) of this so important and timely subject

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THE ABORTIVE TREATMENT OF WOUND INFECTION

CARREL'S METHOD—DAKIN'S SOLUTION *

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Nearly all of the truly great discoveries in medicine and surgery have had to combat skepticism, worn out dogmatism and even the open hostility of a large part of the profession before their general acceptance has been obtained Imagine, for a moment, the trials of those surgeons who, in their broadness of mind, first dared to brave the anger of their brethren in the hippocratic creed when they "cut for stone", now, all unite in honoring that specialty whose field is so important and beneficent The great military surgeon of Charles IX, Ambroise Pare, was ostracized and nearly lost his life because he dared to substitute healing balms for boiling oils in the treatment of wounds of war His use of the hemostatic ligature called forth a storm of protest and was not generally accepted for

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8. Munson Mil Surg June 1917

* Read before the Section on Surgery General and Abdominal, at the Sixty Eighth Annual Session of the American Medical Association New York, June 1917

* By Dakin's solution wherever it occurs in this article, I mean neutral solution of chlorinated soda as described in New and Nonofficial Remedies 1917 p 141 and in The Journal A M A, Dec 9 1916 p 1777

years Still later, Larry, chief surgeon to the great Napoleon, was constantly under suspicion of his colleagues for presuming to overturn their long established tenets The practice of vaccination and the use of diphtheria and other antitoxins have been, and still are, subject to adversity even after their efficacy has been undeniably established The first ovariotomy was performed with a hostile and howling crowd outside the house awaiting its outcome

The contention over antisepsis, and still later, the subject of asepsis, is still within the memory of many today Such examples might be indefinitely multiplied These tests, however, which we at first may regard as unfortunate, may quite likely be blessings in disguise, as they serve to separate the wheat from the chaff Once their sterling worth has been proved, those who offered the greatest resistance to their use are often the first to honor and approve

The status of the latest treatment for the prevention or abortion of infection, as devised by Dr Alexis Carrel, is no exception to the rule Skepticism, jealousy and doubt have been directed against it, to our credit let it be said, largely by others than American members of the profession Those who have had the best opportunity to study Carrel's method thoroughly and observe its results believe that it ranks as a life-saving, limb-saving and time-saving procedure, almost equal in importance with the advent of antisepsis It is humiliating but nevertheless true, that sanitation and preventive medicine have far outstripped the advance in the surgical handling of industrial and military wounds, so far as prevention of infection is concerned During the Spanish-American War, the deaths from sickness outnumbered those from wounds in the proportion of 6 1, bearing out the old tradition that disease is more deadly than bullets That a startling change has taken place, however, is borne out by the statistics gathered among the Canadian troops in the present war, in which the proportion of deaths due to disease to those from wounds, instead of being 6 1, is but 1 20 These figures include not only those actually engaged but also the entire Canadian contingent from the time of its enlistment during the nearly three years in camp and trench, and represent less than 1 5 per cent of the total casualties Out of 5,242 officers and men who have not been killed outright but wounded, of those dying after the first twenty-four hours, 80 per cent of the deaths have been directly traceable to infection Furthermore, according to Tuffier, consulting surgeon of the French, 80 per cent of all amputations have to be performed because of infection, and from 95 to 98 per cent of all secondary hemorrhages are due to the same cause While in our own civil and industrial surgery, owing to better facilities for early treatment, these figures may not be so high, still it is true that a large proportion of deaths, amputations and of prolonged disability can be directly traced to infection The part played by infection and the prime importance of its control were early recognized by Carrel, who for over two years has bent every effort toward its solution, with the result that now, for the first time in history, we have a method which, if resorted to sufficiently early, will not only positively prevent and abort infection of any sort but will eliminate it in from one to three weeks after it has become fully established

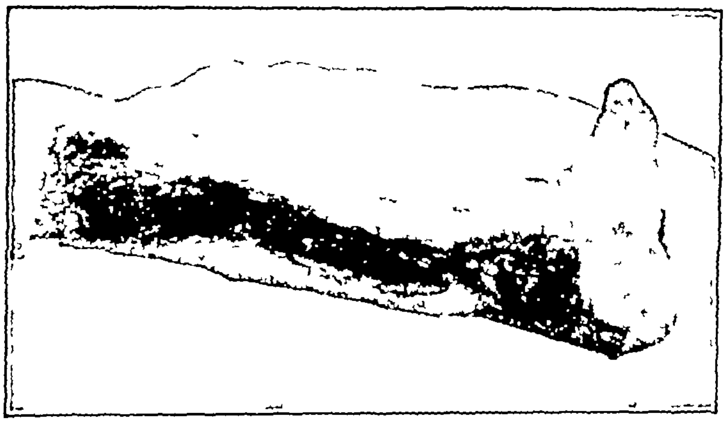

Fig 1 —Crush of leg, with loss of skin and soft parts wounds sterilized and closed by rubber ligature suture and silkworm gut sutures excellent functional result

Carrel, in conjunction with Dakin, who had charge of his chemical laboratory, carried on his work first at Tuffier's laboratory at the Beaujon Hospital, Paris and later at Military Hospital 21, Compiegne, under the direction of the Rockefeller Institute The Carrel-Dakin treatment comprehends the direct sterilization of wounds with their subsequent secondary closure by suturing or strapping The procedure to be successful requires

1 The proper initial and early care of the wound, clearing and cleansing

2 The specific antiseptic hypochlorite solution (Dakin's solution) prepared after the formula of Daufresne

3 The standardized armamentarium of Carrel

4 An exact application of the principles of a simple but all important technic

5 Absolute aseptic redressings

6 Bacteriologic control of the time of closure

7 Approximation of the margins and closure of the sterile wounds by *suturing, lacing or strapping*

The success or failure of the treatment largely depends on the mode of procedure at the first dressing This is preparatory in character If necessary, a general anesthetic is employed Under aseptic precautions, all areas surrounding the wound are shaved and cleansed with benzin or ether, followed by painting with tincture of iodin With scalpel or scissors, the bruised or devitalized skin margins are carefully cleared away Now, with fresh sterile instruments, the entire wound and all its ramifications are laid freely open, permitting of no pockets or secluded recesses Under careful and delicate exploration, foreign matter, clothing, shell fragments, bullets, unattached bone fragments, infected or likely to become infected tissues, and the tissues which appear to be devitalized are carefully excised All bleeding points are carefully controlled and blood clots removed This is necessary because the solution of sodium hypochlorite possesses the property of dissolving blood clots, and hence, if proper precautions are not taken, may cause severe secondary hemorrhages This constitutes the wide "*débridement*" spoken of by Carrel as necessary in prompt clearance and cleansing of the wound and subsequent successful application of the treatment

Chlorinated lime is probably one of the oldest antiseptic chemicals known to science, and from this standpoint, the solution of hypochlorite constitutes no new discovery The discovery of the combination of this chemical, however, which will permit of its safe use in the living tissues without destroying them, constitutes the great advance in its use The antiseptics used heretofore by surgeons have been either too strong causing destruction and necrosis of the tissues with which they come in contact, or so weak that their effect on the infecting organisms was negligible, thus resulting only in injury to the cells of the tissues without killing the microbes

After experimenting with some 200 antiseptic solutions, of various kinds and strengths, Dakin at last succeeded in compounding a solution of sodium hypochlorite which was later modified by Daufresne but still known by the name of Dakin The formula for preparing this solution should now be too well known to demand its rehearsal Caution should be given, however that Daufresne's modified formula be not confused with Dakin's original formula Unfortunately, the latter is in use in various parts of the country, and owing to its greater causticity and lower bactericidal properties will not give the results claimed for the true Daufresne-Dakin solution (neutral solution of chlorinate soda)

Great care should be exercised in the making of the latter solution, which must contain to be effective, from 0 45 to 0 5 per cent sodium hypochlorite, the causticity of which has been thoroughly neutralized by adding the proper proportions of sodium bicarbonate and sodium carbonate the antiseptic thus obtained is absolutely nontoxic, noncaustic and nonirritant to the tissues and possesses a high bactericidal power It is from fourteen to twenty-two times as bactericidal as phenol (carbolic acid) Its low cost, together with the possibilities of its use in practically unlimited quantities, makes it an ideal antiseptic The solution is not difficult to make Too much emphasis cannot be made on the necessity of titrating and testing for free caustic every time the solution is newly made The unstableness of bleaching lime makes this imperative Certain critics have stated that Dakin's solution is similar to Javel water and Lebarraque's solution There is nothing in common in the clinical and bacteriologic appearance of wounds treated with Dakin's solution and other hypochlorite solutions Close examination of the formula will readily disclose the difference On my return from Europe, I found that few druggists or chemists in the United States were making Dakin's solution properly In many of the largest cities and hospitals, the solution was faulty, no attempt being made either to titrate or to free the solution from alkali In many cases, these solutions had been in use for from nine to twelve months While the end-results were generally better than under other methods, they were far from ideal Daufresne has been working on a new process of making Dakin's solution electrically To this potassium permanganate is added to insure greater stability, the details of this work will be forthcoming at an early date

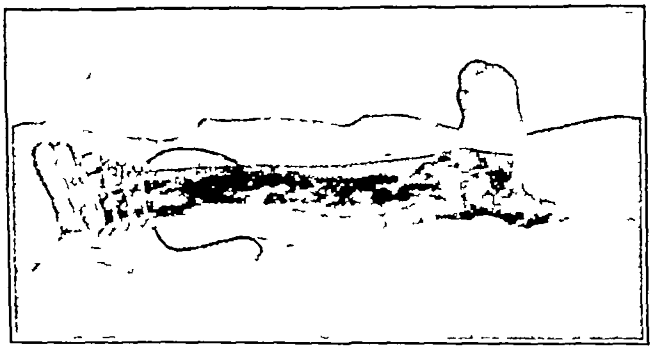

Fig 2 —Manner of closing with ligature

Sodium para-toluenesulphochloramin, sold in this country as Chlorazene (Abbott) and under different names abroad, is a coal tar derivative, and while it is stable and a very efficient antiseptic, it does not have the same properties as Dakin's hypochlorite solution Where Dakin's solution cannot be made, sodium paratoluenesulphochloramin can be used as a substitute, though it should be borne in mind that the hypochlorite solution of Dakin is much to be preferred and is also less expensive

THE STABILITY OF DAKIN'S SOLUTION

The Coleman laboratories have prepared several hundred gallons of Carrel-Dakin solution (Dakin's solution made according to the technic of Daufresne) and have been frequently asked, "How long will the solution hold up?" In order to answer this question intelligently, they made a series of experiments with solutions kept under various conditions, and tested them at frequent intervals to note the rate of decomposition The formula used in the preparation of the solution has been published,[1] and is known as the Daufresne technic, as used by Carrel The concentration of sodium hypochlorite in the solution must be exactly between 0 45 and 0 50 per cent Below 0 45 per cent the solution is not sufficiently active, above 0 50 per cent it becomes irritating

A series of six half-pint bottles were filled with a solution containing 0 52 per cent sodium hypochlorite and kept as indicated in Table 1

Ten c c were taken from each bottle, and 20 c c of 10 per cent potassium iodid solution, and 20 c c of acetic acid (36 per cent) were added and titrated with tenth-normal sodium thiosulphate solution, after first being standardized against tenth-normal iodin solution The results are given in Table 2

The figures show that

1 A solution kept in a clear glass bottle exposed several hours a day to direct sunlight decomposes quite rapidly and is useless after several days

2 The same solution kept in an amber bottle under the same conditions decomposed much more slowly and was satisfactory until thirty-one days after the first exposure

3 The solution in a flint bottle, exposed only to diffused daylight, remained satisfactory for thirty-five days

TABLE 1—CONDITIONS UNDER WHICH SOLUTIONS WERE KEPT

No of Solution	Kind of Bottle	Conditions
1	Amber	Kept in closet on shelf near floor
2	Flint	Same as No 1
3	Amber	Shelf in laboratory getting diffused day light but no direct sunlight
4	Flint	Same as No 3
5	Amber	By window getting afternoon sunlight
6	Flint	Same as No 5

4 The same solution in an amber bottle, exposed under the same conditions, shows a much slower decomposition, and is still satisfactory at the end of forty days

5 The two solutions kept in a closet on a shelf near the floor, in flint and amber bottles, respectively, have shown no difference in the rate of decomposition as

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[1] Carrel Dakin Solution Queries and Minor Notes The Journal A M A, Dec 9 1916 p 1777

far as the bottles are concerned Both solutions are going down slowly, and both contain 0 506 per cent sodium hypochlorite at the end of forty days' trial

CARREL TECHNIC

The mode of action of the hypochlorites is not as yet definitely known Dakin has been unable to find any evidence in support of the theory that their antiseptic action is due to the liberation of oxygen in the presence of organic matter The application of hypochlorite solutions to animal tissues is productive of the evolution of chlorin rather than oxygen It appears, therefore, that this liberation of chlorin occurs when *Dakin's solution is instilled into the wound, and that* this chlorin acts on the organic matter present with the conversation of some of the >NH groups of the proteins into >NCl groups, producing new substances which are chemically known as chloramins These chloramins are known to possess the same bactericidal properties as the hypochlorites do themselves, and it seems probable that it is through their action rather than through the liberation of oxygen that their direct bactericidal effect is obtained In addition to this direct bactericidal action, Dakin's solution possesses a hyperisotonic effect which results in the flow of lymph from the surface of the wound, thus preventing the usual rapid absorption of toxic products through the lymph channels This partial reversal of the lymph flow may, at least to a certain extent, account for the well known absence of evidence of lymphatic involvement in infected wounds treated by the Carrel method

TABLE 2—RESULTS OF TESTS

Days	1	5	7	14	19	21	26	31	35	40
Sample 1	522	522	514	510	510	510	510	510	506	506
Sample 2	522	522	514	510	510	510	510	510	506	506
Sample 3	522	522	514	510	510	510	510	510	506	502
Sample 4	522	516	502	487	480	476	469	461	450	413
Sample 5	522	510	495	480	476	473	465	458	435	

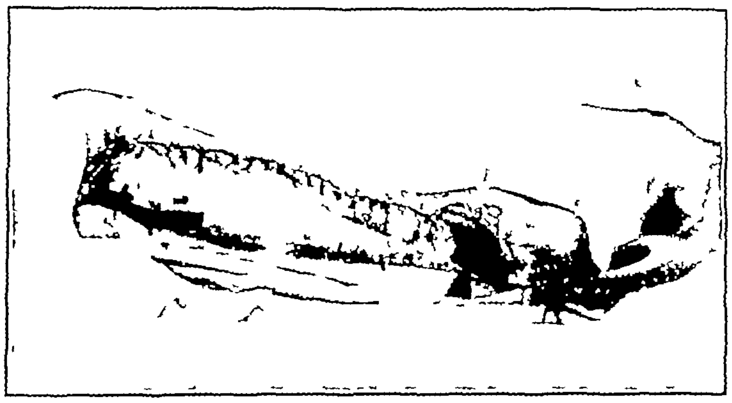

Fig 3 —Result, Feb 7, 1917

Time will not permit of a detailed description of the Carrel apparatus, nor, indeed, should this be necessary, since there have previously appeared several communications thoroughly describing the apparatus and emphasizing the importance of the equipment as worked out by Carrel Many of the failures which have been recorded have been due either to the incompleteness of the equipment used or to unwarranted efforts at its modification Carrel's apparatus was devised solely and entirely for the purpose of enabling one thoroughly to saturate and bathe repeatedly every part of the wound with the solution without the necessity of frequent redressings For this reason, what may seem an overabundance of the number of tubes should be used in dressing the wound in order that there shall be no part of the wound surface which will not be readily reached by the solution when it is injected Two, four, eight, ten, twelve and even twenty tubes are necessary in a single wound

The fluff gauze which is lightly laid between and about the tubes serves only to retain the solution in contact with the tissues during the interim between the installations, which are carried out every two hours The gauze also fixes or holds the tubes in position This time interval between injections has been found by experience to be the most efficient in keeping the wound saturated or bathed with the antiseptic continuously At no time should so much solution be permitted to enter the wound as will more than fill it and saturate the bedding, but just enough to permit of complete saturation of the gauze dressing One might look on the method as one of a continuous bath confined solely to the infected tissues One can readily judge from experience the exact amount of solution necessary completely to lake or puddle the wound *The method is not one of continuous drip (Murphy), and if this is attempted, failure is sure to follow* The method is one of instillation under pressure every two hours The solution should spray from the small holes staggered in the tubes made by a special punch, as water sprays from a rose spray Certain pharmaceutical firms have placed on the market an apparatus which, if used, would spell certain defeat The expense of the apparatus, together with the many complications, prohibits its use Carrel's *standardized apparatus* should be used *The method is not one of drainage It is directly the opposite,* the Carrel tubes carry Dakin's solution into the wound and do not carry anything away Most surgeons find it extremely difficult to give up their ideas of drainage They persist in attempting to drain by making numerous counterincisions, and as a result, much of the solution runs away Dependent drainage is not used unless for special indications Too many rather than not enough tubes will be found to be beneficial

As Dakin's solution is somewhat irritating to some skins, it is necessary to surround the margins of the wound for a distance of 3 or 4 inches with bandage gauze impregnated with sterile petrolatum Bandage gauze No 4 mesh, from 2½ to 3 inches wide, is cut into suitable lengths, this gauze is placed in trays (catheter trays preferred) and covered with melted liquid petrolatum It is then placed in an autoclave and sterilized, after which the excess of petrolatum is poured off and allowed to cool The strips of bandage which are enmeshed with petrolatum can then be readily peeled out of the tray and placed on the skin This sufficiently protects the skin from any possible ill effects

The vessel containing the solution should be attached to the head or the foot of the bed, never more than 3 feet above the level of the wound, and should pain be experienced when the solution is permitted to run into the wound, the reservoir should be lowered in order to diminish the force of the stream

Greatest care should be exercised in the redressing of these Carrel-treated wounds in order that we shall not daily be reinfecting the tissues which we are attempting to sterilize This is quite possible if any of the instruments or dressings which come in contact with the skin about the wound are used in the wound itself The dressing should be entirely instrumental

When the dressings are removed, the tubes are taken from the wound and the petrolatum gauze from the surrounding skin Cotton sponges moistened with commercial ether are then used to remove the excess of petrolatum and to cleanse somewhat the skin areas This is followed by thorough and careful cleansing with a neutral 8 per cent solution of sodium oleate followed again by saline and ether to dry the surface of the skin The petrolatum protectors are then reapplied The dressing forceps which have been used up to this stage are laid aside and a fresh sterile set employed in reinserting the tubes and fluff gauze Before this is done, however, the surface of the wound should be lightly cleansed with sodium oleate and salt solution

The granulation tissues of wounds treated with Carrel s method have an entirely different gross appearance from granulations treated with any other method They are bright red, resembling much the gross appearance of a cross-section of beef muscle After the infection subsides, the granulations can be rubbed with gauze sponges free from pain and bleeding They are firm and well organized, never becoming superabundant If the dressings or granulations are painful, infection is present After the granulations are sterile, reinfection can easily be caused by carelessness in technic The skin must be scrupulously cleansed at every dressing to prevent infection of the wound If Dakin's solution is stopped, the wound will rapidly become reinfected This question is frequently asked "Can the same results be secured with solutions other than Dakin's hypochlorite?" Emphatically, no Depage and Carrel in exhaustive experiments tried out a great many solutions (salines, phenol [carbolic acid], mercuric chlorid, etc), and found that a wound could not be kept sterile with these solutions and that they could not be sutured with any degree of safety

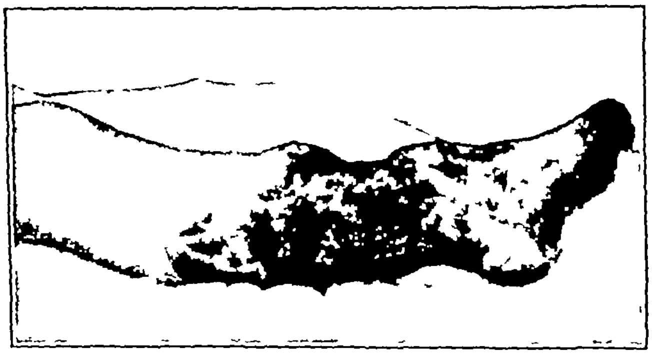

Fig 4—Crush of leg Jan 16, 1917 all tissues severed except posterior tibial artery, and soleus and gastrocnemius muscles extremity saved from amputation with regeneration of bone soft parts and skin granulating wound healed with skin graft.

Ordinarily, dressings are repeated every twenty-four hours, but when necessary, it is perfectly safe to permit them to remain for two or three days This should not be done, however, if circumstances will permit of daily dressings

The Carrel tubes are boiled daily before they are used The linen or silk which ties off the end of the tube is removed, and the interior of the tube is cleansed If this is not done, collections of debris will be found in the interior of the tube which tends to clog up the tube The interior of the glass container should be cleaned every day, as a precipitate tends to form on the bottom of the container which rapidly becomes caustic, and if allowed to remain will cause burning and much discomfort to the patient If the patients complain of pain or discomfort, one can be sure that the solution is either caustic or there is some error in the method of introducing the solution The Turkish towel covered tubes are used *only* for the superficial wounds They remain more firmly fixed than the plain rubber tubes

Every aseptic and antiseptic precaution must be carefully carried out from the beginning to the end if success is to be obtained While the method is very exacting, it is not difficult if the principles are thoroughly mastered A dressing carriage should be so arranged as to permit of its being used in the surgical wards This table or carriage contains trays for plain Carrel tubes (assorted sizes), for Turkish towel covered tubes, two trays for petrolatum gauze (various sizes), sterile forceps and hemostats, scissors and scalpels, for soiled instruments and for soiled Carrel tubes that are removed at dressing, one ether bottle, jar for cotton sponges, for small gauze sponges, for large gauze fluffed sponges, for flat gauze sponges, and for Turkish towels, three half gallon bottles containing sodium oleate solution, Dakin s solution and physiologic sodium chlorid solution, jars for bandages, one irrigation bottle, and three small basins for Dakin s solution, saline and sodium oleate If the dressing carriage is conveniently arranged with this equipment, sponges, instruments, gauze, etc, the great majority of the dressings can be done in the general ward This work can be so organized that while more time and detail are required, little or no difficulty is encountered in the thoroughness with which the dressings are being made The time consumed in making the dressings is more than compensated for by the great saving of time in the convalescence

In order thoroughly to master the method, one should spend at least three weeks observing the treatments Special instruction should be given physicians and nurses in all the detail, one cannot follow the method or secure the remarkable results of Carrel unless one is thoroughly familiar with the method Those who decry the method are not familiar with the technic, which represents 80 per cent of the cure We have had no difficulty in instructing interns and nurses so that in a short time they all become proficient I have trained a nurse to make the smears, stain counts and keep the bacterial charts so that this feature of the method is now being done very well The method is not difficult, but it is exact, and one must master the details, or failure is certain to result

TREATMENT OF INFECTIONS OTHER THAN THOSE OF WAR

The Carrel technic with Dakin's solution is undoubtedly a specific so far as infection of wounds is concerned It not only aborts infection if used early, but cures it when once established, provided the focus is within reach of a Carrel tube It is being used successfully in the treatment of suppurations following radical operations on the frontal and the mastoid sinus, and infections about the mouth and teeth (if a technic can be devised in the treatment of pyorrhea, one can hope for success, the present technic is to follow the mechanical cleansing of the teeth by packing around the gums loose pledgets of cotton, this cotton to be kept saturated with Dakin's solution by applying the solution applied He was on safe ground within forty-eight hours and made a good recovery

In every case of acute appendicitis or peritonitis that we operate on we use this method We put in ordinary drainage tubes also, because as yet I have not the courage to do without them and probably should not in all cases, also two to five or even eight Carrel tubes are introduced About the second day the Dakin solution is begun

We are more than pleased with the method, and I am glad to call the attention of the surgical section to the fact that it is just as applicable in civilian practice as in military surgery

Dr R W Corwin Pueblo Colo I wish to corroborate the statements made by Dr Sherman I was with Dr Carrel at Compiegne for about four months last year, and what has been stated here today agrees with the work I saw in France Since returning home we have used Dakin's solution and Carrel's method at Minniqua Hospital with splendid success and great satisfaction The treatment is painless and the process of healing remarkably rapid

Dr E S Van Duyn, Syracuse, N Y The greatest emphasis and insistence should be put on the importance and necessity of following exactly and implicitly each and every step of Dr Carrel's technic No man has a right to criticize the Carrel method from his own results unless they have been so obtained The importance of each step in the Carrel method has been fully brought out In this discussion I will use only the first step to illustrate my point, the necessity of exactly following his method of understanding the underlying intent and of long practice in the technic After studying Dr Carrel's own work in his hospital at Compiegne and adopting his method in our hospital, we obtained with each new train of wounded quicker and better results as our ability and accuracy in the use of the method increased

The first step in the method is the proper preparation of the wound Heretofore we have been accustomed to follow two principles in the primary care of wounds (1) to conserve all tissue possible (2) to insure free drainage, the latter by dependent drains and counter openings Both of these principles are diametrically opposed to those underlying the first step in the Carrel method He prepares the wound (1) so as to hold the Dakin solution in constant contact with its entire surface, and (2) removes all tissue so traumatized that its vital resistance to bacterial invasion is lowered For the first the incision should be above, so that the wound will act as a well, not below, and there should be no counter-opening, as this would defeat the purpose of retaining the Dakin solution, which must flush upward and overflow at the top For the second, loosened pieces of tissue and torn muscle and skin tags devitalized by bruising and lessened blood supply offer, if attempt is made to save them, as is so often done in an expectant method, little resistance to bacterial invasion and must be cut away broadly The older the wound the more important is this Such wounds fill quickly with new growths Hard, binding and contracting cicatrices never result when Carrel's method is properly followed

Dr William O'Neill Sherman, Pittsburgh I do not wish to convey the idea that Dakin's solution is a panacea Not at all The success of the method is dependent on the thorough, open, wide dissection of the shell track and removal of all of the foreign material and devitalized tissue It is necessary to spend two or three weeks in study and observation to master it The criticisms and objections come from the people who have never seen it and know practically nothing about it It is just as useful in civil practice In every one of thirty cases of septic abortion the infection subsided In twelve puerperal infections we have been able to reduce the bacterial count from 60 to 1 or below 1 to the microscopic field There may be something much better in six months or a year, but to date it has saved life and ought to be adopted in the United States army and navy I hope some action will be taken to train surgeons in this method

As to the technic The skin is cleansed with ether, following that with neutral sodium oleate soap, after that the skin is dried, then bandage gauze enmeshed with liquid petrolatum is placed along the edge of the wound so that the solution does not injure the skin The debris is removed from the wound and the tubes inserted into the different parts of the wound and injected every two hours, the dressing is repeated every twenty-four hours These wounds may be sponged and the sponge will not be blood-stained The granulations are entirely different in gross appearance from any other granulations As to the use of the solution in the free peritoneum, I am not prepared to give an opinion My experience is a limited one in diffuse peritonitis and there is not enough information at hand to make any definite statements at this time Empyemas and localized abscesses clean up very rapidly If the infection can be reached with a Carrel tube it is certain to subside There are only a certain number of patients who have an idiosyncrasy to burning from Dakin's solution, and those who are burned complain more of the burn than of the wounds

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PERLECHE *

J E LANE, MD

NEW HAVEN, CONN

My attention was attracted to perleche about two years ago, when I chanced to see a few cases in New Haven In looking for literature of the disease I found brief descriptions of it in the larger textbooks of dermatology and of pediatrics, and the translation of a French article in a periodical,[1] but I was unable to find any first hand description of it in the English language One American dermatologist, Cole[2] of Cleveland, published notes on a few cases in an article on eczema and pyodermatitis These cases were seen at Jadassohn's clinic in Berne So, in the literature that has come to my notice, there is no indication that the disease is found in this country Most of the textbooks say that it is seen chiefly in France (Stelwagon, Pusey, Sutton)

I do not know whether the disease is a rare one here, whether it is rarely seen because it causes little inconvenience and physicians are not consulted for it, or whether no one has thought it worth while to describe it because it is of so little consequence

In New Haven it is quite common, but this fact was discovered by looking for cases with the assistance of visiting nurses and nurses detailed for school inspection In this way I saw forty or fifty cases in a year and a half In this paper I shall attempt to give the main features of the disease as gathered from the literature and from my own observations, leaving the less important points for a more detailed paper

Perleche first appeared in medical literature in 1885, when Lemaistre of Limoges published a careful clinical and bacteriologic study of some 300 cases Although this was the first appearance of the disease in the literature, it is certain that it had then been known for a long time in some districts of France, for it had acquired several names in the Limousine patois The same is true of Germany, as was shown by Epstein, who collected a considerable number of popular names for the disease In Italy, according to Solaro, the disease was also well known, but had remained nameless up to the time of Lemaistre's study

DESCRIPTION OF THE DISEASE

Although perleche is occasionally found in adults, it is preeminently a disease of infancy and childhood

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* Read before the Section on Dermatology at the Sixty Eighth Annual Session of the American Medical Association, New York *June, 1917*

[1] Buffalo Med and Surg Jour, 1886 1887

[2] Cole Arch f Dermat u Syph 1913

It is an affection of the labial commissures, almost always bilateral, and usually rather closely limited to the commissures. As it progresses the process extends for a varying distance toward the center of the lips, and usually extends a little on to the skin surface and on to the true mucous membrane of the inner side of the lips. At the beginning of the disease the epithelium is smooth and whitish, with a mother of pearl tinge. As it progresses the epithelium becomes macerated, a little thickened, and loses most of the mother of pearl color. Small transverse fissures appear, which show a red base, if the lips are stretched, but which do not reach the lower layers of the epidermis, and which do not bleed readily even if rubbed. In some cases there is slight erosion, but the surface is ordinarily not denuded. One well known textbook on the diseases of children describes perleche as a "form of ulceration" and adds that "the ulcer is of a grayish color, is quite painful, and is associated with considerable swelling of the lip." According to other authors and to my own observations, this is exactly what perleche is *not*. It is never an *ulceration* and there is no swelling of the lips connected with it. There is little or no inflammatory area around the lesions. Occasionally a little of the pellicle can be detached and more infrequently there is some hypertrophy. As the lesions begin to heal their appearance approaches that of the early lesions and after the roughness has disappeared there remains only a slight discoloration which persists for a month or so. No scars are left. If treated the disease is usually cured in two or three weeks. If left to itself there is usually spontaneous cure in a month or so unless there is reinfection, but in some cases it is of indefinite duration. In one case which I left untreated the whitish color was still visible at the end of a year.

In the mild cases of perleche there are no symptoms at all. In the fully developed cases there is a slight feeling of irritation which causes the child to continually run the tongue over the lesions. It is from this sign that the disease derives its name. There is never enough discomfort to cause the child to rub or pick the lesions. There are no other symptoms or physical signs. There is never more than the slightest local inflammatory reaction and the lymphatic glands are never enlarged. Impetigo, desquamation of the tongue and impetigenous stomatitis are sometimes associated with the disease, but in my cases there was no such association.

Lemaistre considered perleche to be caused by a streptococcus which he called the *Streptococcus plicatilis*. Several investigators following him considered the staphylococcus the causal agent. At present all agree with the most recent writers, Cole and Jadassohn, that the streptococcus is probably the causal agent, but that it can not be considered absolutely proved to be such, until we have succeeded in reproducing the disease in animals or human beings. Bartlett of Yale University kindly made cultures from twenty of my cases. Two or more varieties of bacteria were found in practically every case, but the streptococcus was the only one present in all cultures. This streptococcus in liquid mediums grew in long chains. On blood agar it produced a slightly greenish color, with little or no hemolysis. A few unsuccessful attempts were made to reproduce the disease in guinea-pigs with this organism.

Considering perleche a streptococcus infection, many observers classify it as a variety of impetigo. Clinically this appears to me to be hardly justified, because the two diseases are not more frequently associated than may be accounted for by coincidence. None of my own patients had impetigo though they were all in the class of patients in which that disease flourishes. In my cases of perleche that extended on to the skin surface, there was not the slightest resemblance to impetigo, and the cases of impetigo that I have seen at the angles of the mouth bear no resemblance to perleche. In fact, in my experience, impetigo usually stops at the edge of the skin, and does not extend on to the vermilion border of the lip. It would seem that if the diseases were identical, they would be frequently associated at the corners of the mouth, and that their appearance in this location would not be so entirely different. It may be, that while the streptococcus is an essential element in the causation of the disease, the association with it of some other bacteria is also essential, a condition of affairs somewhat similar to that found in Vincent's angina.

Auche studied the histopathology of one case of perleche and found cellular infiltration of the connective tissue of the papillae, dilatation of the blood and lymphatic vessels, thickening of the interpapillary plugs, enlarged intercellular spaces in the prickle cell layer with leukocytic infiltration, and, in the upper part of this layer, serofibrinous infiltration and some intercellular cavities filled with polymorphonuclear leukocytes. Some of the prickle cells were degenerated, opaque and without nuclei.

Perleche is highly contagious. Lemaistre found 312 of the 5,500 children in the primary schools of Limoges affected, a little over 5 per cent. Raymond describes two epidemics, in one, forty-two of the 155 children of one school were affected, in the other, twenty-five of the 245 children. I have seen five cases in one family, and two or three cases in several different families.

Common drinking utensils are the most frequent vehicles of transmission. Other ways in which it is spread are kissing and the use of common pencils, handkerchiefs and towels.

DIAGNOSIS, PROPHYLAXIS AND TREATMENT

The diseases mentioned as likely to be confused with perleche are herpes labialis, eczema, stomatitis and syphilis. No careful observer would confuse perleche with any of these diseases except syphilis. Perleche so greatly resembles the mucous patch or split papule that Fournier said that every practitioner who sees perleche for the first time never fails to take it for a mucous patch, and both he and Raymond asserted that the resemblance is so great that perleche is not to be differentiated objectively from the corresponding types of syphilis. However, this difficulty largely disappears if the mouth and the surface of the body are carefully examined, because secondary syphilis does not betray itself simply by mucous patches at the commissures.

My own observations are in accord with these statements. Nothing except syphilis could seriously be considered in making a differential diagnosis. A person acquainted with the disease would run little danger of confusing the mild cases with syphilis. In the more advanced cases it would have been impossible to make the diagnosis from the lesions alone, but in no case was there any doubt after a complete examination of the patient. In a larger series of cases it is likely that there would be some which could not be settled in this way, but at the present time a doubtful case should be easily cleared up by the dark field or by the Wassermann reaction If any doubt remained, brief treatment would settle the question

What has already been said sufficiently indicates the prophylactic measures needed to stop the spread of the disease The treatment is most simple Prompt cure is effected by painting the lesions daily or every other day with a 10 per cent solution of silver nitrate, a diluted tincture of iodin, and the copper sulphate of the alum pencil Sabouraud recommends in addition an antiseptic mouth wash, but this is hardly needed in most cases Auché found a 5 per cent solution of chromic acid efficient in the few cases that resisted the milder treatments mentioned

Note—This paper was written some weeks ago, and the work on which the paper is based was finished before the beginning of this year A few days ago, I saw in The Journal an abstract of a paper on perleche by A L Smith,[3] of Lincoln, Neb I saw this abstract too late to consult the original paper, but the title indicates that 223 cases were studied, and I should judge from the abstract that my conclusions substantially agree with those drawn by Smith

ABSTRACT OF DISCUSSION

Dr Harold N Cole, Cleveland I believe that Dr Montgomery of San Francisco has written something on perleche, and also the late Dr Edward Cushing of Cleveland

Dr. William A. Pusey, Chicago I think Dr Lane has performed a service in calling our attention to perleche in the way he has The name is an attractive, short and distinctive word to describe a condition which we have all seen for a long time When I first read the accounts of perleche I was a good deal confused as to what the condition was Later I saw a statement, by Sabouraud I think, that perleche is an impetigo at the corners of the mouth Since then my conception of it has cleared, and I have thought of it as a pus infection at the corners of the mouth due to maceration and lack of care in dirty children, and that impression is confirmed by what we have heard from Dr Lane. I think the name perleche is a good one to add to our dermatologic nomenclature to describe a distinct clinical picture

Dr Philip Kilroy, Springfield, Mass While it is true that perleche is only a localization of a streptococcus infection, or of impetigo contagiosa, it is an important one for the reason that it is mistaken frequently for secondary syphilis Perleche is common It is found in children as a complication of ordinary impetigo, and like retro-auricular intertrigo, or intertrigo under the breasts in women, is merely a localization of streptococcic infection I believe the real cure to be copper sulphate In the country districts, where we have to cure quickly, we cure impetigo in twenty-four hours The lesions are thoroughly washed, and then, according to the age of the patient, from 0 5 to 1 per cent solution of copper sulphate is applied, sometimes 1 to 2 per cent of zinc sulphate is combined with the copper, but I doubt if the zinc helps any The patient is told to apply the copper solution the first time thoroughly around the edges, between the epidermis and dermis, with a wooden toothpick or similar instrument, as Dr Marrow applies his silver nitrate, and then to touch the lesions with the solution every hour or half hour for twenty-four hours The only resulting unsightliness is a greenish crust, when this is washed off there remains a slight redness, but the impetigo is cured

Dr George Manghill Olson, Minneapolis I have seen a number of cases of perleche in Minneapolis in nervous young girls who lick one corner of the mouth and then the other Perleche is impetigo contagiosa brought on by this trauma in many of the cases

Dr W C Brownson, Asheville, N C. I think Dr Lane has given an admirable description of perleche, which will now be recognized as an American disease and not something exclusively French It is not limited by any means to children, as we have been led to suppose. I have frequently seen it in adults I saw a social worker on my way up who has had the trouble for two years I attended him and thought he had been cured, his wife has not shown any signs of the trouble Whether they indulge in the reprehensible habit of kissing on the mouth, I do not know I have promised to cure him after he gets back home, but it is an unusually persistent case, evidently

Dr John E Lane, New Haven, Conn Sabouraud calls perleche "impetigo commissural," and when I publish the subsequent paper I shall give a large number of other names that have been used One of them is "angulus infectiosus oris" I do not wish to be understood as asserting that perleche and impetigo are different affections, as I think that question is not settled but that it will soon be settled My reasons for not classing it as an impetigo at present are entirely clinical Lemaistre, who had more experience with the disease than any other observer, never saw impetigo and perleche in the same person, and in hospital wards and schools he never saw perleche give rise to anything but perleche, and never saw impetigo cause perleche

I am very much interested in Dr Brownson's statement that perleche is common in the South, and in his statement that he sees it in adults It has been described as occasionally seen in adults, but I have never seen a case

As to treatment, the mouth wash recommended by Dr Kilroy is perhaps wisely prescribed in all cases Sabouraud also recommends it. Miller reports a number of cases in which he was compelled to use atropin to stop excessive salivation in order to effect a cure In my own cases, cure has been prompt with the simple measures I described

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INVESTIGATIONS AS TO FREQUENCY OF METASTATIC EYE INFECTIONS FROM PRIMARY DENTAL FOCI

PRELIMINARY REPORT *

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NEW YORK
ASSISTED BY
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It must be realized that ideal research conditions cannot be obtained in investigations such as we are reporting on, for the reason that the ailments for which the patients are presenting themselves are of such a nature that we did not feel justified in eliminating all routine treatment, owing to the danger of possible irreparable damage due to delay, should the dental foci not be the etiologic factor

In the course of the past year, fifty-seven patients with various eye conditions were sent to the dental department of the Herman Knapp Memorial Eye Hospital for dental treatment The diagnosis in these cases and the results obtained were as shown in the accompanying table

The general impression which has hitherto obtained is that these metastases occur through the blood stream, but our observations have led us to the conclusion that this belief is not substantiated by the clinical evidence With one exception, all the patients cured or materially benefited presented dental infection on the same side as the affected eye If the belief that these metastases occurred through the blood stream was correct, we feel we should have observed more cases in which cure or material improvement occurred, when the dental infection was on the opposite side from the affected eye Failing to have seen such cases, we have been led to the conclusion that these eye metastases, occurring from primary dental foci, travel through lymphatic channels We have recently endeavored to demonstrate the correctness or fallacy of this belief by means of animal experimentation, but unfortunately, the number of experiments carried out so far are too few to arrive at any conclusion Animals injected intravenously or through lymphatic channels have all died without presenting any eye lesion whatsoever We have been using rabbits for this work, but as they are particularly susceptible to streptococcus infections and succumb very readily thereto we feel we shall have to secure animals less susceptible in order to carry on further investigation

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[3] Smith, A L Perleche Its Bacteriology, Symptoms and Treatment in Two Hundred and Twenty Three Cases, Arch Pediat., 1917, 34, 274, abstr, The Journal A M A, May 26, 1917, p 1581

* Read before the Section on Stomatology at the Sixty Eighth Annual Session of the American Medical Association New York, June, 1917

DIAGNOSIS AND RESULTS IN FIFTY SEVEN CASES

Diagnosis	Cases	Cured	Materially Improved	No Result
Chronic iridocyclitis	9	2	1	6
Acute iritis	7	1	4	2
Detachment of retina	5			5
Episcleritis	2		1	1
Choroiditis	10	1	2	7
Iridochoroiditis	2			2
Acute iridocyclitis	5		5	
Vesicular keratitis	1	1		
Keratoiritis	2		1	1
Postoperative iritis	3	1	1	1
Cyclitis	1		1	
Corneal ulcer	2		1	1
Retrobulbar neuritis	1		1	
Retinal hemorrhage	1			1
Chorioretinitis	1		1	
Interstitial keratitis (nonspecific)	1		1	
Neuroparalytic keratitis	1			1
Dendritic keratitis	2	1	1	
Sclerosing keratitis	1	1		
	57	8*	21†	28‡

* 14 per cent † 36 85 per cent ‡49 per cent

Believing it may be of interest, we will briefly outline a few typical cases

CASE 1—C B man aged 34 years, Dispensary No 15267, presented himself Feb 2 1916 with the history of blurred vision of the left eye for the past four days He had had a similar condition a year previously and was treated at that time for choroiditis and glaucoma On examination vision in right eye was 20/20 left 20/30 Vitreous opacities and choroidal patch in lower temporal region of the left eye Diagnosis choroiditis Urinalysis was negative as was also the streptococcus complement fixation An examination of the nose and sinuses excluded them as possible etiologic factors Feb 14, 1916 the upper right cuspid and second bicuspid were roentgenographed disclosing an apical infection about the root of the cuspid This tooth was extracted and a culture made from the root end and the curretings from the socket. Culture gave *Streptococcus viridans* as the predominating organism Feb 19, 1916 five days after the extraction of the cuspid, vision was 20/20 and the eye was much clearer It cleared up entirely in a short time and has remained so since.

CASE 2—J K. male, aged 24, Dispensary No 23416, presented himself March 2, 1916 with a history of pain and inflammation in the left eye for one week The patient gives the history of having had syphilis and gonorrhea recently Has had considerable disturbance from one of the teeth in the upper left maxilla Examination Vision R. 20/20, L 20/80, conjunctival and ciliary congestion The left pupil reacts sluggishly and the iris is greenish in color Internally the eye shows congestion of the retinal veins The Wassermann and gonococcus complement fixation were negative, the streptococcus complement fixation, weakly positive On March 7 1917 a roentgenogram of the upper left maxilla showed an apical infection about the roots of the upper left first molar On the following day this tooth was extracted and a culture made The culture showed a pure growth of staphylococci from which the vaccine was obtained The extraction of this tooth was followed by a slight reaction, the eye becoming somewhat redder On March 14, 1917, the eye was almost white On the 21st, the fundus examination showed a diminution of the venous congestion He received two doses of the autogenous vaccine before he left our care, March 26, at which time the eye was white and only slight venous engorgement remained

CASE 3—W R, man, aged 51, Dispensary No 21026, presented himself Oct 27, 1916, with a history of redness of the upper lid of the left eye of one week s duration Examination showed vesicles of forehead and upper lid The eye was normal The patient was given aluminum acetate to apply locally in the form of a wet dressing On November 20 he again presented himself with a history of failing vision of the left eye for two weeks previously Vision L 20/40, the cornea shows an opacity nasally and below and is anesthetic B P 160 The Wassermann reaction was negative the streptococcus fixation weakly positive Examination of the teeth revealed a severe pyorrheal condition of the six lower incisors, the only teeth remaining The extraction of these teeth was advised, but this the patient refused to have done On November 24 his vision had fallen to 20/100 On December 4 all the teeth were extracted, at this time the vision was 20/200 and the cornea was hypesthetic From now on, his condition gradually improved until on December 27 the cornea was no longer anesthetic and the eye was almost white On January 12, the eye was white, the vision was 20/40, and showed only a faint macula as the remnant of the inflammation

CASE 4—M S woman, aged 27, Dispensary No 15743, previously presented herself Feb 26, 1916, with a history of having had the grip two months prior to coming to the dispensary, following which the left eye became painful She is married, has three children, has never aborted and is otherwise normal Examination Vision R 20/20, L. 20/70 The right eye shows four nodules of episcleral and possibly scleral infiltration They are situated above and temporally, over which areas there is slight congestion In addition to these nodules there is a vertical band of superficial opacity about 2½ - 3 mm wide, extending from the pupillary margin temporally almost to the center of the cornea, with a smaller band temporally A roentgenographic examination of her teeth showed apical infection about the roots of the upper centrals and about the root of the lower right second bicuspid The roots of the upper centrals were filled and the ends amputated and the lower right second bicuspid was extracted Cultures were made in both instances The culture from the root ends of the centrals showed the staphylococcus to be the predominating organism *Streptococcus viridans* and the pneumococcus were present The culture from the bicuspid socket gave *Streptococcus viridans* as the predominating organism From this culture a vaccine was prepared Patient received in all fifteen injections of the autogenous vaccine at intervals of seven to ten days Following some of the injections there was a slight reaction in the form of backache, headache and an increase in the local redness When this occurred the dose was diminished In June, four months after her first visit to the clinic, her vision had increased to 20/20 and the nodules were very much smaller The nodules subsequently disappeared and the opacity became fainter

CASE 5—F A, woman, aged 44, Hospital No 19183, presented herself September, 1915, with a deep keratitis of the right eye for which the etiology could not be found She gave a positive reaction with tuberculin but treatment with tuberculin did not improve her condition Thyroid tablets were also given without result She was treated in this manner until Dec 12, 1915, when a roentgenographic examination of her teeth showed apical infection about the roots of the lower first molars, the upper left first and second biscuspids and the upper right cuspid and second bicuspid On the following day the lower left first molar was extracted and on the fifth day following, the root of the upper right cuspid was filled and the end amputated A vaccine was prepared from a culture taken at the time of the root amputation She was given this autogenous vaccine and her condition gradually improved Two weeks following the root amputation, the eye was clear and the pain had completely subsided When last seen in October, 1916, her vision was normal and there were only a few deposits remaining marking the site of the old infiltration

Case 6—W J, man, aged 71, Hospital No 19898, was operated on for a mature cataract of the left eye June 20, 1916 The second week the eye became inflamed Patient had recurring attacks of iridocyclitis, sometimes with the development of hypopyon The Wassermann and the streptococcus complement fixation were negative On July 6, 1917, the upper left bicuspid (first) and upper left first molar were removed This was followed by considerable local improvement The patient subsequently had two more attacks of iridocyclitis On August 21, a roentgenographic examination showed abscesses about the upper left second bicuspid, lower left first molar, upper right first and second bicuspids and upper right lateral Later the lower left first molar was removed and a culture made from the socket gave a pure growth of *Streptococcus viridans* Following the clearing up of these dental foci, the eye improved and no further iritis occurred

Case 7—J S, man, aged 42, Hospital No 20251, presented himself Nov 3, 1916, with the history of having taken "cold" two to three weeks previously, following which the right eye became red and discharged pus He continued at his work and did not consult a physician until the day before admission to the hospital An examination of the secretion from the conjunctival sac was negative A grayish infiltrate, irregular in outline, ran across the lower half of the cornea, somewhat dendritic in shape The cornea was hypesthetic The streptococcus complement fixation was negative On Nov 13, 1916, roentgenographic examination showed abscesses about the roots of the right central, lateral, cuspid, first bicuspid, first and third molars, also the upper left central All these teeth were removed Following the extraction, the patient made a rapid improvement and was discharged cured

Case 8—E O R, man, aged 22, Dispensary No 22729, presented himself Jan 29, 1917, with the history of an acute inflammation of the left eye of three days' duration The history was negative, with the exception that the patient had had a severe cold just before applying for treatment The patient admits having poor teeth Examination gave vision R 20/100, L 1/200 Pupil narrow, anterior chamber filled with exudate Urinalysis negative, Wassermann and gonococcus complement fixation negative, streptococcus complement fixation + Patient did not improve under the usual treatment for acute iritis A roentgenographic examination of his teeth revealed abscesses of upper left first bicuspid, first molar, lower left third molar, upper right first bicuspid and first molar These teeth were extracted and there was an immediate improvement in the condition of the eye, the vitreous, however, still remaining hazy At the time of discharge the patient's vision had increased to L 20/100 and the vitreous had cleared up considerably

Case 9—W O'C, woman, aged 27, Dispensary No 22024, presented herself Dec 21, 1916, with the history of having had an attack similar to the present one, in both eyes, at the age of 13 For the last five months the left eye has been bothering her She complains of poor vision, redness and photophobia The family and the personal history are negative Examination Vision R 20/40, L 20/100 The left eye shows numerous opacities, eight or nine in all, of irregular size and shape in the substance of the cornea Some of the patches are white, others grayish The Wassermann reaction, urinalysis and examination of the nose proved to be negative Patient was given 1 mg of tuberculin T O but did not react A roentgenographic examination of her teeth showed abscesses over the upper left lateral and first bicuspid, also about the lower left first molar, right first bicuspid and upper right third molar On December 23 the roots of the lower left first molar were extracted and on the 26th the upper left lateral and first bicuspid, upper right second bicuspid and third molar were extracted Patient's condition did not improve until some time later Six weeks after extraction of the teeth the vision of the left eye was 20/40 plus, and the cornea was decidedly clearer

Case 10—M J, woman, aged 30, Dispensary No 19480, presented herself Aug 12, 1916, with the history of having had pain in the right eye for two weeks Patient says she had a previous similar attack in 1903, at which time she was treated for eleven weeks The Wassermann reaction was + + + + Later the left eye became involved, and she was admitted to the hospital on Nov 10, 1916 She did not improve under the routine treatment for cases of specific iridocyclitis, which treatment included mercurial inunctions and injections On November 19, a roentgenographic examination of the teeth showed apical infections about the roots of the upper right lateral, second bicuspid, lower right third molar, upper left central, lateral first bicuspid, upper and lower left third molars All these teeth were extracted, giving almost immediate relief from pain The patient from then on made a rapid and uneventful recovery

It will be noted that a fraction over 50 per cent of the cases were either cured or benefited by dental treatment It is not meant that the conclusion should be drawn that 50 per cent of infectious eye conditions will be benefited or cured by dental treatment, but that when dental infection is present, coincidentally with an infectious eye condition, there is a strong probability that the dental foci may be a material etiologic factor

We would again call attention to the fact that in all but one of the cases enumerated, dental infection has been on the same side with the affected eye

Owing to the fact that the usual dental examination is of a very perfunctory nature, it is perhaps not out of place for us to warn the ophthalmologist to satisfy himself that a careful roentgenographic examination has been made of all suspected teeth before excluding them as a possible etiologic factor in infectious eye conditions

28 West Eighty-Ninth Street, New York—94 Lenox Road, Brooklyn—155 East Sixty-Second Street, New York

ABSTRACT OF DISCUSSION

Dr Meyer L Rhein, New York I do not agree with Dr Levy in regard to the deduction he makes from the complement fixation test He says he places very little reliance on a small positive result This is not at all in conformity with my own clinical experience with this test

As mentioned elsewhere, up-to-date there have been over 150 strains isolated, and we do not know at present how much further these strains may go Consequently a negative streptococcus fixation test does not necessarily prove that there is not a streptococcus infection by a strain that has not been used for comparison I have been using the test extensively for a year and a half, and my own clinical deductions are that even a small positive test is of great diagnostic value There is a great deal of uncertainty about it, but I do not think that it is fair to the test to draw the conclusions the essayist draws in his remarks The one case he cites in which there was a negative test and in which staphylococci instead of streptococci were found, calls to our attention how frequently we may have this source of infection instead of the streptococcus, and of course if there is any great proportion of this form of infection, it presents an entirely different point of view relative to the complement fixation test and everything pertaining to it

There is a strong possibility that both of these microorganisms may be found, that is, in certain cases either one may be the attacking organism I think this is a valuable form that investigations should take, and while it is of value, I feel that the investigator attached too much importance to the negative result of the fixation test

Dr. Morris I Schamberg, New York I am not connected with any eye institution and have not observed as many cases as Dr Levy I have had probably five cases in the last two years, among which a most refractory recurrent iritis on the right side was directly attributable clinically to an infection on an upper left molar tooth, which might have escaped attention even with the help of the Roentgen ray if I had not used common sense in conjunction with it There was nothing to suggest rarefaction at the apex, or any evidence of infection A shadow in the picture showed a large filling which appeared to project into the pulp chamber, and I assumed it was pulpless After applying the termal test I decided to remove the tooth to make a culture from it After the removal of the tooth the eye cleared up, though it did not occur for some time

Eye cases respond almost as rapidly without vaccine treatment as with it In one recurring case vaccines were administered with very gratifying results Another case of iritis in a woman aged 86 defied treatment by the ophthalmologists and did not respond in any sense until I looked into the mouth Nothing in the roentgenogram indicated infection or deep seated pyorrhea I noticed however that there was an offensive breath, and that the fold at the gingival border was rather deep I used tincture of iodin and alcohol in equal parts having the part sprayed three times a day, and had a nurse make applications to the eye spraying forcibly into pockets a bland antiseptic every half hour, and with that treatment the eye improved though it had not responded until the mouth treatment was instituted

I would sound a note of caution against the conclusion that the lymph channels are the means of transmission of infection to the eye I believe the complement fixation tests and the blood cultures are just as uncertain as our findings in Wassermann examinations, in fact I think more so I feel that there is a great deal to be learned about these various tests and I know that it is almost impossible, even though there are organisms circulating in the blood, for the average pathologist to recover them and grow them

The same thing applies in connection with the test Dr Levy proposed the injection into the lymphatics I am convinced that if autogenous vaccines are used in the blood stream these antibodies formed will eventually reach the lymph channels and if injected into the lymph channels they will reach the blood stream I offer that as a suggestion

Dr Thomas L Gilmer Chicago I should like to ask a question As a preface to this question I would say that those of us who have made a study of the bacteriology of alveolar abscesses and made animal inoculations have used the vein of the ear to introduce the organisms As a result we have found ulcers in some organs and hemorrhages in many parts In our work at St Luke's Hospital we found as a result of such inoculations 20 per cent of hemorrhages in the periosteum of the jaw and about the same in the joints Does this not seem to indicate that the organisms go directly through the blood stream?

Dr. James H Kelsey Erie Pa I should like to make just a few remarks in corroboration of Dr Levy's paper and to mention one or two personal experiences that I have had in connection with teeth and eye conditions Dr David N Dennis a well known oculist in Erie, and I have cooperated to some extent in the last year and a half, and I have been able to compile records on some fifteen to twenty cases of eye conditions that have been benefited by dental treatment I have in mind a few patients who have definitely assured me of the connection between eye conditions and teeth conditions, in one case particularly, that of a young man about 18 years of age who had a neuroretinitis, a rather bad case, a Wassermann test was found negative the spinal fluid was taken, nose examined, the Roentgen ray showed the sinuses normal and so on, everything possible had been done until he was referred for dental examination and diagnosis We found an upper right first bicuspid showing a small granuloma To hasten results, on account of the severity of the eye condition, this tooth was extracted The eye cleared within a few days The rest of his teeth were examined and found apparently in good condition, but about three months afterward there was a recurrence of his eye trouble Another thorough examination of his teeth disclosed a hidden cavity in the bicuspid on the opposite side from the one mentioned The pulp was partially dead and answered tests for both a vital and a nonvital condition I extracted that tooth and the eye condition cleared up again within two or three days Since then, as I understand, there has been no recurrence

In my experience eye conditions have had more to do, perhaps with the ten upper anterior teeth than with any of the other teeth in the mouth Another case was of a right central incisor with an apical infection that held a gold crown The crown was removed and the tooth drained, within a few days the eye condition cleared I left the tooth open, and later closed it up, thinking perhaps it was all right I sealed it hermetically with cement, and within a day or two the same eye condition presented itself again I removed that filling drained it again and treated the tooth further, and in the last eighteen months there has been no recurrence

In one case of eye trouble we found a pyorrhea pocket around an upper third molar and nothing else wrong We made a vaccine from this pocket, extracted the tooth, curretted the socket and used this vaccine for some time, and with local eye treatment the condition cleared, but prior to that for some months the patient had considerable trouble, everything else possible having been done

Dr G V I Brown, Milwaukee, Wis In this discussion it seems to me we are assuming that because there is iritis and an abscessed tooth, that *ipso facto*, the eye trouble must be the result of the infection That does not follow at all It may still come from the tooth, but it seems to me that the newer study of nerve conditions in that region supplies a very much more simple reason why my friend got a more direct result in the relief of his case than he could have expected from an infection, because he had a direct nerve relief Later investigations show that there is a much more direct connection than has been thought between the ciliary ganglion and the fifth nerve, so that the tooth which was extracted might easily have supplied the cause and the correction, whereas no amount of investigation and no test, complement fixation or anything else could have demonstrated that the iritis was the result of infection I am not saying it was not, of course, but I do not think in this discussion we ought to ignore this newer study of nerve conditions and look fixedly on the side of infection all the time

Dr. Joseph M Levy, New York I believe the last speaker might be justified if we were only discussing iritis, but I wish him to recall that we have other cases and other eye conditions which have responded to dental treatment One thing I will say in substantiation of the statement made by the last speaker No one, I believe, among all those investigating these metastic eye infections has ever been able to produce a bacteriologic culture from tissue taken from one of these eyes and only once has anybody ever claimed to have produced an experimental iritis by animal inoculation

Whenever I have drawn the conclusion that the eye condition may have been due to a primary dental infection and that there had been an infectious process in the eye, it was because I have had the authority of Dr Knapp and his staff at the hospital that such was the case I am not drawing conclusions as to whether an eye condition is or is not due to either nerve irritation or infection, because I believe it is just as foolish for me to make a diagnosis about the eyes as for the ophthalmologist to make a diagnosis about the teeth If the ophthalmologist turns a case over to me as an infectious eye condition, I have to accept his diagnosis Whether or not this answers Dr Brown I do not know

In reply to Dr Rhein's statement about the species of streptococci, I want to say that some of these streptococcus complement fixations were performed, using as antigens streptococci obtained from cultures made from the teeth and sockets at the time of extraction We cannot, presumably, get closer to the original organism we want for an antigen than using the one from the culture made at the time of extraction Of course the conditions under which the cultures are produced are entirely different from those in the body, and there may be some difference in the organism itself when grown in culture than when grown in the body If we take a culture from a tooth which we believe is producing an infectious condition elsewhere in the body and use it as an antigen for complement fixation, and the fixation result is negative, and we get a positive cure or material improvement from the elimination of this tooth, I think we are justified in concluding that the primary focus was where we believed, and the complement fixation showed there was no demonstrable toxin in the blood due to this organism

Now as to Dr Schamberg's statement about a recurring case of iritis in which he used a vaccine If he made a careful roentgenographic examination and eliminated the dental focus, where did he get his vaccine for this case? Did he use a stock vaccine?

Dr Morris I Schamberg, New York I refer to the fact that a roentgenographic examination proved negative until I used common sense in conjunction with it and decided to remove a pulpless tooth from which we took a culture

Dr Joseph M Levy, New York As to animal inoculations, most of the men doing animal experimentation seldom use less than 3 to 5 c c of a twenty-four hour culture Their bacteria will probably run up to 100 million to the cubic centimeter Rosenow uses colossal quantities, 15 to 30 c c We do not get anything like this in the human being What we get, or what we have been led to believe we get, is a slow, gradual but constant inoculation with the active virus from the original focus What we are trying to produce in our animals is a similar condition If we give massive inoculations our rabbits promptly go to postmortem We are trying to produce these slow but constant injections, simulating the conditions we find in the human subject, and see what results will be obtained We have had the usual results obtained by other experimentors as to cardiac, arthritic and other involvements, but to date we have been unable to produce an experimental infectious eye condition

THE CRUCIAL TEST OF THERAPEUTIC EVIDENCE *

TORALD SOLLMANN, M D

CLEVELAND

According to the good old truism, the last and crucial proof of the pudding is in the eating thereof, and so, the last and crucial test of a therapeutic agent is its consumption by a patient There is, however, one essential difference When the pudding is eaten, with a sense of satisfaction, we know that it was a good, or at least an eatable pudding

If the patient improves after taking a remedy, we do not yet know that he improved on account of the remedy The *post hoc* type of reasoning or logic is not respectable, but it is all too apt to creep in unawares, unless one takes great precautions indeed

Clinical evidence needs especially to be on its guard against this pitfall, for the conditions of disease never remain constant, nor is it possible to foresee with certainty the direction which they are going to take It is just this point which makes the clinical evidence so much more difficult to interpret than laboratory evidence, in which the conditions can be more or less exactly controlled, and any changes foreseen It is on this account, also, that clinical experiments must be surrounded with extra painstaking precautions

In brief, while the "proof" of a remedy is on the patient, that is not the whole story, but merely an introduction The real problem is to establish the causative connection between the remedy and the events The imperfect realization of this has blocked therapeutic advance, has disgusted critical men to the point of therapeutic nihilism, and has fertilized the ground for the commercial exploitation of drugs that are of doubtful value or worse

This has been impressed on me particularly by my service on the Council on Pharmacy and Chemistry In the course of its work of passing on the claims advanced for commercial remedies, this council is forced to inquire critically into the basis of the claims of manufacturers.

It is interesting to note the qualitative differences in the evidence for the various kinds of claims The chemical data are usually presented in such a form that it is possible to tell at a glance whether or not they are based on demonstrated facts, which could usually be verified or refuted without special difficulty The deductions are usually such as can be legitimately drawn from the data, or else they are obviously absurd All this agrees with the relatively exact status of chemical science

In passing to data and deductions from animal experiments, a distinct change is noticeable Not only are the data less reliable, and less worthy of confidence, but they are more often stated in a less straightforward manner The presentation of the data often shows evidence of manipulations of the results, so as to make them most favorable to a preconceived conclusion that would recommend the drug This is not always intentional, but is partly due to the less exact nature of animal experimentation, which leaves a wider play to the arbitrary interpretation of the reporter A certain amount of this is unavoidable No serious objection can be raised, provided the experimenter presents all the essential data, and discusses fairly all of the interpretations that would apply to them

On the whole, it is usually possible to form a fairly definite estimate of the value of experimental data

When one comes to the clinical evidence, an entirely different atmosphere obtains When the Council demands evidence of the usefulness of a remedy, the manufacturers generally respond with every sign of enthusiasm They may have ready a series of articles already published, or they instruct their agents to bring in letters from physicians The last method seems to meet the most cordial response, judging from the deluge of letters and opinions that floods the Council

The quality of the published papers is a fair reflection of the deficiencies of what is still the common type of clinical evidence A little thought suffices to show that the greater part cannot be taken as serious evidence at all Some of the data are merely impressions — usually the latest impressions of an impressionable enthusiast — the type of man who does not consider it necessary to present evidence for his own opinions, the type of man who does not even realize that scientific conclusions must be based on objective phenomena.

Some of the papers masquerade as "clinical reports," sometimes with a splendid disregard for all details that could enable one to judge of their value and bearing, sometimes with the most tedious presentation of all sorts of routine observations that have no relation to the problem

The majority of reports obtained by the agents belong to these classes, notwithstanding the fact that they are often written for the special use of the Council, and therefore with the realization that they are likely to be subjected to a thorough examination, and therefore presumably representing the best type of work of which the reporter is capable So, at least, one would suppose

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* Read before the Section on Pharmacology and Therapeutics at the Sixty Eighth Annual Session of the American Medical Association, New York, June, 1917

It is also possible, however, that some of these reports are written merely out of thoughtlessness, or perhaps often to get rid of an importunate agent This is illustrated by the following correspondence, taken literally from the files of the Council

A letter from a prominent physician "A," endorsing a certain preparation "D," having been submitted to the Council, the secretary was directed to write to Dr A as follows

> *Dear Dr A* —The B Company of C has requested the Council on Pharmacy and Chemistry to admit its preparation D to New and Nonofficial Remedies As part evidence for the value of the preparation the company submitted a letter from you which contains the following
>
> > So far as my experience has thus far gone, they are certainly superior to a number of other iodine compounds now on the market and I should judge that they ought to take a superior place in therapy involving the use of iodine
>
> The referee of the Council in charge of D writes that he was interested by your letter and asks that I inquire As compared with sodium or potassium iodid what would you say are the differences between and real advantages of D and the alkaline iodids? Did you make any comparative experiments and keep a record of them? If so, the referee would like to receive an account of your trials In what direction could D be expected to occupy a superior place in iodin therapy?
>
> I hope that you can give the information asked by the referee and thus aid the Council in arriving at a correct estimate regarding the value of D

The following reply was received from the physician in response to the foregoing

> *Dear Professor Puckner* —In reply to yours of January 19 I did not proceed far enough in the investigation of D to draw conclusions of any particular value for the purpose of the Council on Pharmacy and Chemistry, and I so stated in my letter to the proprietors of that remedy
>
> Answers to the questions you put in your letter require an amount of investigation of the remedy far beyond anything I undertook. As a matter of fact I returned about five sixths of the capsules sent me, because of lack of time and opportunity to carry out the extensive clinical experiments that I plainly saw would be required to give an opinion at all worth while I believe you had better not consider me in the matter at all

The report was furnished by a physician for whom I have a high personal regard I introduce it here, not so much in a spirit of criticism, but as a justification of the opinion that I have formed of clinical evidence obtained by manufacturers through their clinical adjutors

When commercial firms claim to base their conclusions on clinical reports, the profession has a right to expect that these reports should be submitted to competent and independent review When such reports are kept secret, it is impossible for any one to decide what proportion of them are trustworthy, and what proportion thoughtless, incompetent or accommodating However, if this were done it is quite possible that such firms would find much more difficulty in obtaining the reports Those who collaborate should realize frankly that under present conditions they are collaborating, not so much in determining the scientific value, but rather in establishing the commercial value of the article

Often the best type of clinical reports — those in which the observations are directed to the significant events and not to mere side lines, and in which the significant events are correctly and adequately reported — generally lack one important essential, namely, an adequate control of the natural course of the disease Since this cannot be controlled directly, it must be compensated indirectly, For this purpose, there are available two methods

The first is the statistical method in which alternate patients receive or do not receive the treatment This method can usually only be of value when a very large series of patients is available Even then, its value is limited or doubtful, because it cannot take sufficient account of the individuality of cases

The second method consists in the attempt to distinguish unknown preparations by their effects — the method that might be called the "comparative method" or the "blind test"

In this, the patient, or a series of patients, is given the preparation which is to be tested, and another preparation which is inactive, and the observer aims to distinguish the two preparations from their effects on the patient Surely if the drug has any actions at all, it will be possible to select correctly in a decided majority of the administrations

The same principle can be applied in distinguishing the superiority of one preparation over another In this case, the two preparations would be given alternately to different patients, and the observer would try to distinguish them by their effects Here again, if one drug is really superior or otherwise different from another, to a practically important extent, the observer will surely be able to make the distinction

This method is really the only one that avoids the pitfalls of clinical observation, it is the only method that makes the results purely objective, really independent of the bias of the observer and the patient It is the only method, therefore, which determines whether it was really the pudding that was eaten and not some other dessert

In principle this method does not usually offer any very great difficulties It is, of course, necessary that the two preparations to be compared shall resemble each other so closely or shall be flavored, etc., so that they cannot be distinguished by their physical properties This is usually not a very difficult matter The method does not jeopardize the interests of the patient, for it is understood that no drug would be tested in this way unless there is some reason to believe that it has a value When the patient's condition is such as to demand treatment, then he would be receiving either the standard drug or the drug which the experimenter believes may be superior to the standard

CONCLUSIONS

The final and crucial test of a remedy is on the patient, but the test must be framed so as to make it really crucial Most clinical therapeutic evidence falls far short of this The "blind test" is urged to meet the deficiencies

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New and Nonofficial Remedies

The following additional article has been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies A copy of the rules on which the Council bases its action will be sent on application W A Puckner, Secretary

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ACETYLSALICYLIC ACID (See N N R., 1917, p 265)

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SATURDAY, JULY 21, 1917

THE PHYSIOLOGIC VALUE OF THE NITROGENOUS COMPONENTS OF THE POTATO

There is a widely persistent belief that protein ingested in the form of vegetable products is far less readily utilized by the human organism than are the albuminous substances of animal origin, such as are commonly consumed in flesh, fish, fowl, milk and eggs The claim of comparatively low digestibility made against the protein of vegetable products has, indeed, furnished one of the arguments used to combat the vegetarian propaganda In part, the statements regarding the poorer utilization of the nitrogen consumed in the form of some of the foods derived from plants are justified Numerous experiments have demonstrated that the figures for the availability of the nitrogenous components of most common legumes and many of the coarser cereals are conspicuously lower than those for the usual mixed diet of man in which food products of animal origin enter quite largely Atwater and Bryant[1] gathered the following data

Character of Diet	Protein Utilized, Per Cent
Animal foods	97
Cereals	85
Legumes, dried	78
Vegetables	83
Fruits	85
Vegetable foods	84
Total foods	92

There are numerous factors which might account for a poorer utilization of nutrients from certain vegetable foods The low nitrogen content of most vegetable foods necessitates the ingestion of a relatively large volume This generally increased bulk of vegetable food may of itself lead to more rapid evacuation and lessen the possibilities of digestion and absorption Again, in comparison with products of animal origin, the vegetable foods may present an unfavorable texture In older plants, the cell walls may be quite tough and even supplemented with lignin There is evidence that cellulose is not digested to any considerable extent by the higher animals, and the vegetable membranes are not always easily permeable to the digestive juices It is of primary importance for digestion that the plant cells should be thoroughly disintegrated Mechanical factors also may influence the rate of passage through the alimentary canal This applies to coarse particles, such as are derived from seed coats in bran

It cannot be argued from the foregoing that the vegetable proteins by themselves necessarily exhibit any inherent resistance to digestion and utilization in man Several years ago, Mendel and Fine[2] showed that the two characteristic proteins of wheat, gliadin and glutenin, are as thoroughly digested and as completely absorbed as the nitrogenous components of fresh meat The same is probably true of the barley proteins, and in somewhat lesser degree of corn proteins No such favorable report is available for the isolated proteins of the white bean and the common pea

What has just been said necessarily leads to the conclusion that each food product ought to be tested on its own merits before any final pronouncement as to its availability is made This is further emphasized from a different standpoint by the newer knowledge of the physiology of the amino-acids A protein may be highly digestible and its digestion products readily absorbed into the blood stream, yet such a protein may be of inferior biologic value because of its failure to yield all of the amino-acids requisite for the nutritive functions in tissue growth or repair The test must be furnished by a physiologic experiment rather than a mere chemical analysis

An answer is now at hand with respect to the value of the potato from this standpoint Its richness in starch has long been recognized, and has led to the inclusion of the potato primarily in the group of carbohydrate foods Hindhede[3] of Copenhagen called attention not long ago to the apparently excellent digestibility and physiologic value of the nitrogenous components as well His trials on men were of sufficiently long duration — weeks rather than days — to give unusual significance to the data Even when potatoes and margarin furnished the sole ingredients of the ration, a satisfactory nitrogen balance could be maintained

This is astonishing in view of the low nitrogenous content of potatoes The general result has just been corroborated, however, by Rose and Cooper[4] at the Department of Nutrition in the Teachers College, Columbia University On a diet adequate in total fuel, consisting of potatoes and clarified butter, in which the potatoes supplied all but 0.1 per cent of the total nitrogen, nitrogen balance was maintained for seven days on a total nitrogen intake of 0.096 gm per kilogram, equivalent to a net intake of 0.068 gm per kilogram. This is in harmony with other experiments in which nitrogen equilibrium has been maintained on potato nitrogen when the net available supply was from 0.04 to 0.08 gm per kilogram and demonstrates that the potato is a source of nitrogen compounds of high nutritive efficiency in spite of the fact that only 63 per cent of the potato nitrogen is reported to be in the form of protein.

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[1] Atwater and Bryant Report, Storrs Agricultural Experiment Station 1899, p 86

[2] Mendel, L B, and Fine, M S Studies in Nutrition, I The Utilization of the Proteins of Wheat, Jour Biol Chem, 1911, **10**, 303, II, The Utilization of the Proteins of Barley, ibid, p 339, III, The Utilization of the Proteins of Corn ibid, p 345, IV, The Utilization of the Proteins of the Legumes, ibid, p 433, V, The Utilization of the Proteins of Cotton Seed, ibid, 1912, **11**, 1, VI, The Utilization of the Proteins of Extractive Free Meat Powder, and the Origin of Fecal Nitrogen, ibid, p 5

[3] Hindhede, M Untersuchungen über die Verdaulichkeit der Kartoffeln, Ztschr f physikal u diatet Therap, 1912 **16**

[4] Rose Mary S, and Cooper Lenna F The Biological Efficiency of Potato Nitrogen, Jour Biol Chem, 1917, **30**, 201

During the war-time shortage of food, the potato has achieved unusual prominence both in Europe and America. It has been lauded as a valuable source of carbohydrate in palatable abundance. Its base-yielding inorganic components have been pointed out as having a useful function in maintaining the acid base equilibrium of the body,[5] and now the climax may be capped by a most favorable report on the high biologic value of the nitrogenous components of a food that has rarely been regarded as having any significance whatever from this standpoint. The promised bumper crop of potatoes for this autumn may thus be thrice welcome.

DANGERS FROM THE EXPLOSION OF CARBONACEOUS DUSTS

Although it is now widely recognized that coal dust is explosive, the fact that other carbonaceous dusts also are easily ignited and capable of explosion is not so well known. An expert of the Bureau of Chemistry[6] in Washington has noted that while most of the dust explosions reported in surface plants occur in mills and elevators handling wheat, oats, corn and their products, it appears that no mill handling carbonaceous material is immune from the possibility of an explosion. The list of known explosions in other kinds of mills includes those handling dextrin, sugar, starch, malt, wood, linseed meal, cottonseed meal, paper, cork, fertilizer, sulphur, cocoa, and spice dusts.

There is a pronounced similarity between the explosion caused by gas and that caused by dust. A flame attains a high velocity in certain gas mixtures in which the oxygen is intimately mixed with the gas molecules. In the case of dusts, the heat of combustion of one particle cannot be transmitted so readily to the next particle as it can in a mixture of gases in the molecular condition. The velocity attained in dust explosions depends on the size of the particles concerned. In addition to the fineness of the dust, its inflammability and the amount in suspension are determining factors.

The importance of obtaining a more thorough knowledge of the genesis and prevention of dust explosions is brought forcibly to our attention by the fact that in a single explosion in an American feed grinding plant, thirty-three men lost their lives, and over seventy were injured. This explosion, which occurred during the ordinary process of operation, completely destroyed the milling plant and considerably damaged surrounding property. The government laboratories which have recently initiated a study of the problems of the inflammability of carbonaceous dusts found that among more than fifty tested varieties that may have a commercial or industrial significance, all had a high degree of inflammability. A dangerous condition apparently exists when a cloud of any of them is in suspension, or in a position in which it can be easily thrown into suspension in the air.

Brown and Clement[7] have summarized the problem by saying that if dust could be entirely confined within the machinery of a mill in which combustible dust is produced, and a method could be found for preventing explosions in these machines, a long step would be taken in the prevention of dust explosions in mills. To keep a dust cloud from forming in the machines appears to be almost, if not utterly, impossible. It is possible, however, by proper cleaning to remove foreign material from the grain and thus lessen the possibility of a spark which might ignite the dust being formed in the machine.

Sources of heat, nevertheless, cannot be entirely guarded against, especially when both mechanical imperfection and human negligence come into play. It seems desirable, therefore, to circumvent this ever present danger by some device which will prevent the possibility of an explosion even when the heat factor is present. This has led to the consideration of the use of inert gases. Carbon dioxid at once suggests itself. The government chemists state that the most likely source of such inert gases around a mill is flue gases. These contain 79 per cent of nitrogen, the other 21 per cent being composed of varying amounts of oxygen and carbon dioxid. Under normally working conditions, the oxygen content is about 11 per cent. Small amounts of carbon monoxid, usually under 1 per cent, are often present, especially when the oxygen content is low. For use in enclosed machines, the carbon dioxid content would not necessarily have to be as low as in a mine or as in an atmosphere in which men are working, and hence it would not have to be removed from flue gases before they could be used in the grinding systems of mills.[7]

Laboratory tests recently reported by Brown and Clement[7] indicate that an explosion of grain dust cannot be initiated in a gas mixture containing 12 per cent or less of oxygen, the remainder being inert gases This limit could be extended to 14 or 14 5 per cent of oxygen if elevator dusts alone are considered These studies need to be extended on a large scale where the actual preventive efficiency of inert gas mixtures containing 12 per cent or lower of oxygen in preventing a dust explosion from starting or propagating can be tested under the conditions of industrial practice From the standpoint of vocational hygiene, the tentative conclusions of the government investigators are highly significant The new researches suggest, they say, that the maintaining of an atmosphere of inert gases in all systems of grinding or handling carbonaceous materials which form dangerous dusts would be an effective means of preventing many dust explosions, for even though an ordinarily dangerous amount of dust may be present and a spark or other source of heat may be formed, the dust would not be ignited or an explosion propagated because the oxygen content of the atmosphere would be too low to support combustion Here is a promise, at least, of an ultimately successful plan in combating a recognized menace to human life

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[5] Compare Blatherwick, N. R.: The Specific Role of Foods in Relation to the Composition of the Urine, Arch. Int. Med., September, 1914, p. 409.

[6] Brown, H. H.: Inflammability of Carbonaceous Dusts, Jour. Indust. and Engin. Chem., 1917, 9, 269.

[7] Brown, H. H., and Clement, J. K.: Inflammability of Carbonaceous Dusts in Atmospheres of Low Oxygen Content, Jour. Indust. and Engin. Chem., 1917, 9, 347.

FUNCTIONAL CARDIAC DISORDERS IN SOLDIERS

The report of Dr Thomas Lewis and his associates of the Hampstead Military Hospital[1] should be read by every American physician who expects to take part in the care of our own troops The report deals with a syndrome which was first described during the Civil War by Da Costa as the "irritable heart of soldiers" The symptoms are not unknown in civil life, and patients suffering with similar disorders are familiar to every physician Under the stress of war, however, these disorders become so much more numerous as to constitute a medical problem of real importance It is altogether probable that the majority of the patients carry into their military careers the underlying factors for the development of the symptoms, and that the rôle of war is a provocative, rather than an actually causative, one, in other words, if these men had continued to live their normal lives free from unusual physical and mental strain, and less subject to infections, they would probably never have developed the affection From the standpoint of throwing light on the etiology and pathology of the syndrome, Dr Lewis' report is disappointing Its conclusions are for the most part negative, yet some of these negative results are of great importance

Foremost of all is the proof that these patients are not suffering from dilatation of the heart The term "cardiac strain" is therefore not properly applicable to them No proof has been obtained that structural disease of the myocardium exists in these patients Infection has been shown to play an important rôle in the production of the symptoms From this an important practical conclusion has been drawn Soldiers suffering from even mild infections should not be returned to the front until their cardiovascular efficiency has been proved to be normal In many cases this would require a short period of retraining The adoption of such a measure would probably prevent many cases Infection is the only etiologic factor which occupies at all a prominent place, and in the treatment of the condition, the removal of foci of infection has sometimes been followed by very rapid improvement The bulk of the patients have been recruited from the sedentary classes This gives the report an especial significance for the United States at this time, when the operation of the selective draft will call to military duty many men unaccustomed to strenuous physical effort, and of a type unfamiliar in the past to the officers of our army It is highly important for their efficiency as soldiers, as well as for their individual safety and comfort, that their training should be carried on more cautiously and slowly than has been necessary with the usually vigorous voluntary recruit of our present army The fundamental importance of the report, however, is its demonstration of what may be accomplished by proper treatment

The British experience has shown conclusively that the ordinary treatment of such patients along the lines familiar for cardiac disease leads to inevitable failure Rest in bed and digitalis are not only useless, but even harmful, by confirming the patient in his belief that he has permanent heart disease Treatment by exercise, graduated to the patient's ability and increased week by week, is of great efficacy At the Hampstead Hospital it has succeeded in removing symptoms, and returning to some military service, almost 50 per cent of the men who did not have chronic cardiac defects, and one-half of these returned to full duty That graduated exercise is useful in such patients has been known to physicians in the past The Oertel treatment was based on the retraining of a damaged myocardium The men who have been successful in the treatment of neurasthenics with cardiac symptoms have found exercise invaluable Dr Lewis' demonstration, however, coupled as it is with the most rigorous objective study of the cases, affords proof on a scale hitherto unknown Furthermore, he has contributed to the efficiency of the army by reducing the average stay in hospital of these patients from five and a half months under the former methods to two months under exercise

It is to be hoped that the medical department of the United States Army will be able to achieve equally satisfactory results in this type of military disability, the first description of which is to be found in the great medical and surgical history of our own Civil War

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[1] See abstract, this issue, page 231

LAUNDRY SANITATION

The hygienic problems of the modern laundry have at least a twofold aspect one concerns the health of the employees engaged in the work, the other relates to the part which the methods and materials of the business may play in the transmission of disease among its patrons. It has been stated that in a number of instances typhoid fever and cholera were conveyed to washerwomen, apparently through infected bed and body linen.[1] Nowadays even the markers and listers who handle the dirty clothes consider their work fairly free from the risk of infectious diseases. The one thing which the workers fear and guard against is body lice.

A sanitary study, including bacteriologic tests, of laundries and the public health was recently undertaken in the Bureau of Laboratories of the New York City Department of Health.[2] It was demonstrated that the methods now employed in large cities in laundering clothes have varying degrees of efficacy in destroying pathogenic bacteria and thus preventing the spread of disease. As a rule, clothing washed in homes receives a good deal of care, so that the danger from infected linen under ordinary conditions is negligible. When the laundry is cared for in the homes of laundresses, the standards set by the individual vary. Owing to the close quarters in which the laundresses live, there is a possibility of a reinfection of the clean linen, if communicable diseases are present among the members of the family of the laundress.

The sanitary conditions existing in what is now familiarly known as the "hand laundry" were in general of low grade. In fact, the expression "hand laundry," as understood by the general public, is a misnomer, since practically the only work done by hand is the receiving, marking, some ironing, and distributing. The New York investigators point out that little washing is done in the average hand laundry. The practice now prevails of tightly *packing* a heterogeneous collection of soiled clothes into large bags or nets. These nets are then sent to the steam laundries, where they are washed as units and returned to the hand laundries wet. The drying facilities employed in the hand laundries are limited and of primitive type. The process is not such as would secure the death of all the pathogenic germs which may have survived the washing process.

In principle, the steam laundry contains all the facilities for a satisfactory sanitary treatment of dirty textiles. Wet clothes infected with bacteria and subjected to the action of the usual degree of heat found in drying houses, tumblers, mangles and hot presses are freed from living organisms. It is stated, however, that the practice of "net washing" as now done in steam laundries is insanitary. The miscellaneous character of the contents of the nets prevents the proper application of disinfectants, soap, water and heat, and thus permits the survival of vermin and pathogenic organisms. The size of the nets and the methods of tight packing employed prevent the penetration of water and heat in the allotted time.

Added defects are also reported with respect to the distribution of laundry articles in the current procedures. The methods employed by steam laundries in the collection and delivery of clothes are found to be defective in a considerable proportion of the laundries. Soiled and clean clothes are carried on the same wagon and come into direct contact. They are also frequently sorted in close proximity, as comparatively few establishments maintain separate receiving rooms in which the clothes may be properly handled. The absence of proper sorting rooms for the clean linen in the average steam laundry and the consequent contact with soiled linen may result in a possible reinfection of the clean clothes.

The New York report states that in the majority of steam laundries the clothes are washed under conditions prejudicial to the health of the employees, the "washers" being usually located in basements poorly lighted and ventilated, with defective floors, and without adequate provisions for the disposal of waste water and steam. Labor-saving machinery, slatted floors, exhaust fans for the removal of steam, and reasonable working hours are some of the measures which will improve the vocational aspects of the industry.

Current Comment

SUGGESTION FOR TREATMENT OF SURGICAL SHOCK

Cannon[1] describes surgical shock as a syndrome with rapid, thready pulse, subnormal temperature, shallow, rapid respiration with an occasional long drawn sigh, pallor, thirst, cold clammy skin, dilated pupils reacting slowly to light, diminished response to sensory stimuli, muscular weakness, diminished reflexes, and apathy. In this complex what phenomena are fundamental and what incidental? These phenomena, he points out, may be classified into four main groups, namely, disturbances of sensation, of motion, of respiration and of circulation, and all or nearly all may be explained by diminution of the volume of blood in circulation. In support of this statement, Cannon cites the parallel between shock and the condition resulting from severe hemorrhage, and also a number of physiologic considerations, notably that low blood pressure causes an increase in sympathetic resistance so that stronger stimuli are required to evoke motor response, and that the activity of contracting muscle is diminished under low systolic pressure, whence results a tendency to lower bodily temperature. Respiratory disturbances may be secondary also to such derangement of circulation as hyperirritability of the medullary center develops from increase of acid metabolic products and diminished oxygen supply. Clearly pallor, small thready pulse, and cold clammy skin are explainable on the basis of circulatory disturbances. We see, then, that viewed in this light, three factors must be considered in any effort to get closer to the nature of shock, namely, the heart, the vasomotor mechanism, and the volume of blood. As the nervous control of the heart is not impaired, Cannon ascribes the relaxation of the heart to low blood pressure and increased hydrogen ion concentration in the blood. He emphasizes that the vasomotor mechanism, contrary to common belief, is not depressed in shock, as the vessels in reality are in a state of tonic contraction. The changes in the nerve cells often given as a cause of shock are results which are found also after severe hemorrhages. These statements will serve to indicate how Cannon reaches the conclusion that the keystone in the problem of shock is the diminished volume of blood in circulation due to stagnation in the portal area. Accumulation of a large amount of blood in the splanchnic area is favored, on the one hand, by relaxation of its capillary vessels due to increased acidity of the stagnant blood and, on the other, by resistance to the outflow through the portal branches in the liver by the activity of the vasomotor centers. The splanchnic blood lies trapped, so to speak, between the contracted portal venules of the liver and the arterioles of the stomach, intestine, pancreas and spleen, necessitating a high general pressure to overcome the resistance. The vasomotor center, when deprived of blood, causes constriction of the vessels in an attempt to raise blood pressure, but in so doing the vessels of the liver naturally share in the general constriction, and there is developed a vicious circle which results in continued accumulation of blood in the portal area and reduction of blood in the general circulation. The point of attack in the treatment of shock, if one adopts this conception, must be relief of the splanchnic condition. For this purpose Cannon suggests the use of pituitary solution intra-abdominally because of its action on smooth muscle. Introduced into the abdominal cavity, it would cause contraction of the smooth muscle of the intestine, thus exerting pressure on the smaller mesenteric veins at the same time as the muscle of the larger veins would be acted on directly. The usual treatment does not restore the splanchnic blood to the circulation; salt solution soon passes into the tissue spaces, epinephrin constricts the splanchnic arterioles, thus defeating the object, and pressure on the abdomen causes equal pressure on the portal vessels. Whether or not pituitary solution will act as indicated remains to be seen, and the results of the practical tests Cannon proposes to make will be awaited with much interest. To repeat, the problem as he sees it is to return the stagnant blood to the circulation, in order to give the heart and blood their proper nourishment, and to accomplish this, he suggests a treatment that is calculated to drive the idle blood back into the general current.

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[1] Kober and Hanson Diseases of Occupational and Vocational Hygiene p 664

[2] Schroeder M C and Southerland S G Laundries and Pub'h Health Pub. Health Rep., 1917 **32,** 225

[1] Cannon W B The Physiological Factors Concerned in Surgical Shock Boston Med and Surg Jour, 1917, **176,** 859

ANOTHER NOSTRUM FALLACY

One of the stock arguments of the "patent medicine" makers—and their stock is large—is the claim that any preparation that has been on the market for a number of years must, by that very token, be of value. No one knows better the falsity of this claim than the nostrum maker, unless it is the advertising man. If, without any advertising, a medicinal preparation continued in public favor for many years, there might be some justification for assuming that the product either had merit, or contained certain drugs that might explain its continued popularity. Yet even this would not be indisputable evidence, because the nostrum always gets credit for that large proportion of recoveries that are wholly the result of *vis medicatrix naturæ*. The most worthless and fraudulent proprietary medicines will, and do flourish just so long as they are advertised. Some of the biggest medical swindles known have brought to their exploiters increasingly large fortunes until Nemesis arrived and put them out of business or until the advertising ceased. The "Sargol" fraud was, during the last year of its existence, bringing in more money to the men exploiting it than it had ever done and, if widely advertised, would unquestionably have continued to do so had not the federal authorities put it out of business. The "Oxydonor" swindle was a goldmine to Moses up until the time he was sent to the federal penitentiary for selling it. The same can be said of Samuel's outrageous piece of imposture whereby he made a fortune selling a weak solution of sugar and salt in hydrant water as a cure for all the ills of the flesh. If the proprietary medicine business proves anything it proves beyond cavil the fact that you can fool some of the people — and some of the doctors — all the time, if you advertise!

TUMORS OF THE BLADDER IN ANILIN WORKERS

Long exposure to anilin appears to result sometimes in the development of tumors of the bladder, with or without the symptoms of chronic anilinism. With the growth of the anilin dye industry and the manufacture in this country of rubber and high explosives, in the process of which anilin and its homologues are used, the symptoms of acute anilinism have become more or less generally known to the medical profession. But these industries are, after all, so new in this country that reports of anilin tumors have not yet appeared in the literature. In Germany, however, the occurrence of these tumors has been recognized for some time. Rehn, in 1895, reported three cases. Lehmann, in his book on industrial diseases, says that in sixty-three cases of anilinism observed by Bachfeld, sixteen patients had bladder affections. In 1904, the Hochst on-the-Main dye works collected from eighteen anilin factories records of thirty-eight cases of tumors of the bladder, eighteen of which ended fatally. Seyberth, in 1907, described in detail five cases in men, all of whom had worked for a year or more in rooms in which they were exposed to anilin. These tumors, he says, may be preceded by mild symptoms of chronic poisoning, that is, slight strangury, rather dark urine, and somewhat blue lips and pale face though the appetite and capacity for work may still be normal (blood examinations were not made) On the other hand, none of these symptoms may be present, and the first sign of trouble may be bloody urine, and on cystoscopy the tumor is discovered In all of Seyberth's cases the tumors were situated at the base of the bladder near the opening of the ureter, where the urine drops from the ureter, carrying the supposed irritant substances, perhaps paramidolsulphuric acid in which form the anilin is partly excreted The tumors may be benign and papillomatous but probably over half are malignant In view of the great danger of malignancy he advises as radical an operation as possible It is well for those interested to remember that at the first sign of trouble with urine or bladder in anilin workers the advisability of careful cystoscopy should be considered

"PATENT MEDICINES" THREATENED BY THE FIGHT FOR NATION-WIDE PROHIBITION

"Patent medicines" may become the national beverage of the United States if a nation-wide "bone dry" prohibition law is enacted, or at least one might so infer if one accepted at face value a speech on "Some By-Products of Prohibition," delivered in the United States House of Representatives, June 29, by Hon Jacob E Meeker, who represents a St Louis district Mr Meeker himself is not a prohibitionist, but his expose of the "patent medicine" business has prompted the prohibitionists, it is said, to consider seriously the need for laws for the further regulation of the manufacture and sale of "patent medicines" containing alcohol, with the possibility that necessary legislation may be proposed in the near future as an amendment to some available bill According to Mr Meeker, 747 "patent medicines," with alcoholic contents ranging from 0 8 per cent to 93 5 per cent are listed by the United States commissioner of internal revenue, and all escape under existing prohibition laws The Department of Commerce is quoted as stating the total capitalization of "patent" and proprietary medicine concerns as $71,437,000, while the distilling business is said to be capitalized at only $91,000,000 "Patent" and proprietary medicines, according to Mr Meeker, are tax-free and bring to the United States government not one cent of tax except that paid on the alcohol used in the process of manufacture A nation-wide "bone dry" prohibition law, without special provisions for the regulation of the manufacture and sale of alcoholic "patent medicines," would, it was asserted, make the $71,437,000 capitalization of the concerns now engaged in their manufacture worth $700,000,000 inside of two years Referring to the liberty, or the license, now allowed venders of "patent medicines," Mr Meeker said

> You would no more permit a brewer to send a circular into your home advising you to use a bottle of beer a day and give another bottle to your baby than you would let him send poison But you will put one of these bottles up on the shelf with full instructions as to how much to give the baby, how much an adult is to take and if mother is not watching you can get a good jag on before she can get you In the name of reform in the name of common sense, in the name of common decency, I say to the men of this house this afternoon if you let your prohibition amendment go on with the federal exemption to "patent medicines" you have made a free gift to all men who shall go into the conversion of alcohol into 'medicine' instead of beer, wine and whisky, and they escape without tax The thing that shocks me is that men will not see that when they exempt these medicine' men from taxation they permit them in the name of 'medicine' to put that amount of alcohol into what they sell which if put into any other drink would drive the producer out of the country under the whip of public scorn You would buy that by the bottle to put into your home, and you would say to yourselves, we are fighting the 'demon rum' Listen If the principle of prohibition is right, we should enact it into law and we should enforce that law if it takes a standing army to do it If the principle of prohibition is wrong we should oppose it on the ground of principle and not as a matter of dollars and cents, not as a matter of saving any man s commodity

END THE MONOPOLY ON SALVARSAN

The Adamson Bill, known as the "trading with the enemy act," has recently been passed by the House of Representatives, is now before the Senate, and will doubtless be enacted into a law One of its clauses confers authority on the Federal Trade Commission to grant licenses to citizens of this country to operate patents owned by enemy aliens Physicians are interested in the bill primarily because it includes the salvarsan situation The manner in which salvarsan has been supplied in this country has been so arbitrary and the prices charged so tremendously above the actual cost, that we should not be satisfied unless the monopoly is ended so that the drug can be supplied at least at a fairly moderate figure, and the old methods eliminated It is to be hoped, therefore, that the Federal Trade Commission will not grant exclusive control — that is, exclusive license — to any one person or firm To do so would simply perpetuate the old monopoly and the old conditions England has adopted a law which, in principle, is similar to the Adamson Bill, and there several concerns have been licensed to manufacture the product The same should be done here The Dermatological Research Laboratories of Philadelphia announce that they can supply Arsenobenzol at $1 50 a tube, and that there is immediately available a supply sufficient for any demand that may be made The same laboratories have announced also that in a few months they will be able to supply hospitals for $1 00 a tube Considerable responsibility rests on the Federal Trade Commission in this matter, for it is not only a question of monopoly, but also a question of scientific qualifications and ability to make the product on the part of some who may make application Undoubtedly the commission will secure the cooperation of the United States Public Health Service, under whose supervision these drugs should be manufactured no matter who shall be licensed to make the product

Medical Mobilization and the War

New Office for Col Jefferson R Kean

Col Jefferson R Kean has been recalled from service in the Red Cross and is to be placed in charge of the 160 U S Army ambulance sections in France He will be succeeded in his position as director-general of military relief by Mr John D Ryan, president of the Anaconda Copper Company Mr Henry P Davison, chairman of the Red Cross war council, says "It is due to Colonel Kean's magnificent work in organizing base hospital units in this country that the Red Cross organization was the first to carry the American flag to France after our entrance into the war Colonel Kean is peculiarly qualified for the great work he is to do abroad" Mr Ryan will take over the supervision of the base hospitals, remaining in this country He will also have charge of all Red Cross efforts to supply medical needs, including the Red Cross service in connection with the sixteen army cantonments Before war was declared twenty-six base hospital units had been formed, and the number has since been increased to forty-three, with five navy base hospitals, eighteen hospital units and fifty ambulance companies According to Mr Davison, "through the Red Cross and private donations these base hospitals have purchased equipment, including beds, blankets, operating tables, tents, etc, at an expense of at least $2,400,000"

Red Cross to Erect Houses for Convalescent Soldiers

The Red Cross war council will build houses for convalescent soldiers who are able to leave the hospital but are unfit for duty, in the camps at Fort McPherson and Fort Oglethorpe, Ga At the latter place the organization, at the suggestion of Mrs Leonard Wood, wife of Major-Gen Wood, commander of the southeastern military district, has also taken over a stone quarry which it will convert into a bathing pool large enough to accommodate 600 The pool is to be ready for use August 27, when the second officers' training camp opens, and will be constructed under the direction of Col Herbert Slocum The convalescent buildings, which will supplement the recreation rooms of the Y M C A, will contain large lounging rooms, writing rooms and wide porches, and amusement and recreation will be provided for the convalescents

Base Hospital No 27 (Pittsburgh) Organized for Active Duty

Arrangements are being made to organize for active duty Base Hospital No 27 of the University of Pittsburgh The following is the complete medical personnel of the hospital Majors Robert T Miller, director, James D Heard, H G Schleiter, Capts Edward W ZurHorst, William G Ray, Stanley Smith, E W Fisk, John R Simpson, Paul R Sieber, Edward J McCague, James W Robinson, Howard H Permar, First Lieuts John H Wagner, Alexander H Colwell, Andrew P D Zumura, Charles B Maits, Frederick Z Cassman, Roy R Snowden, R C Clark, Raymond J Frodey, Ross H Booth, Frederick Jacobs, Henry T Metz, Max Neil The organization will be effected at Allentown, Pa, where the unit will assemble for the training and equipment of the enlisted men

Medical Reserve Officers from Training Camps Muster in National Guard

During the past week many of the medical reserve officers in the training camps have been sent to various states in order to muster in the National Guard On Saturday, July 14, ninety-two officers went from Fort Benjamin Harrison to Pennsylvania for this purpose, others were assigned to New York The reserve officers from Fort Riley, aided by the remaining officers from Fort Harrison, will muster in the National Guard for the Central Department

Commissions in the Reserve Corps

During the week ending June 30, 1917, six majors, 144 captains and 951 lieutenants were recommended to the adjutant-general of the Army for commission in the Medical Reserve Corps During the week ending July 7, 1917, six majors, 105 captains and 706 lieutenants were recommended for commission in this corps

Notes on Base Hospital No 4, U S Army, on Active Service*

The following report on the itinerary of the Cleveland base hospital is forwarded by Dr George W Crile, director

On April 28, the director of Base Hospital No 4 (the Lakeside, Cleveland, unit), received a telegram from the Surgeon-General ordering the immediate mobilization of this unit for service abroad, and asking if the unit could be ready to leave within ten days An affirmative answer was at once returned, and the work of mobilization was promptly inaugurated

On May 3, Major H L Gilchrist, M C, U S Army, was appointed the commanding officer of the unit, with Capt A D Tuttle, M C, U S Army, and Capt Titus E Sturgeon, Q M O R M C, U S Army, as adjutant and quartermaster, respectively The mobilization and muster-in was completed on May 6, on the afternoon of which day the unit with its full personnel entrained for New York, sailing on May 8 Aboard the ship the unit was honored by an official visit from the Surgeon-General and Major Noble, M C, U S Army As this unit was not only the first contingent of the United States Army to be mobilized for service in this war, but also the first unit of the American Army that has ever been ordered to Europe for active duty, the Secretary of War detailed these officers to visit the unit as his representatives on the day of its departure The Surgeon-General addressed the officers, the nurses and the enlisted men, pointing out the great political significance of this first military expedition, since it represented the inauguration of a departure from the tradition of the United States and opened a new page in our history

On arrival in Liverpool, May 18, the unit was welcomed by a general officer and administrative medical officer of the British Army, and Colonel Bradley, U S Army, from the American embassy These officers inspected the unit, which was drawn up in parade formation on the saloon deck. General Edwards and Colonel Bradley then made brief addresses from an improvised rostrum, this being flanked on one side by the stars and stripes, on the other by the union jack Immediately on arrival at Liverpool, Major Crile, director of the professional staff, was temporarily detached from the unit to attend the Inter-Allied Surgical Conference at Paris

Under the command of Captain Tuttle, the enlisted men went at once to the army post at ——— to gain a brief insight into R A M C methods Here they received a royal public and official welcome The whole town was bedecked with American and British flags and the line of march to the town hall was flanked by R A M C troops Here the official welcome was extended by the mayor, clad in his official robes He closed with the words

> "In the name of the citizens of ———, I may, I think, say, in the name of the whole British Empire, we accord to you the heartiest welcome it is possible to give manhood I bow to you and I ask for three cheers for the American citizens who have come to us"

The officers not detailed to duty with the men at ——— were entertained at dinner on the evening of the day of arrival by the Brigadier-General and his staff, and on the following day with the nurses and the civilian personnel went to London, where the former were received by a company of the R A M C, and the nurses officially welcomed by the Countess of Airlie, representing Queen Alexandra, Miss Beecher, matron-in-chief of the Army Nursing Board, and others At the War Department, Lieut-Gen Sir Alfred Keogh, the director-general of the Army Medical Service, and Surg-Gen Sir W Babtie, like General Gorgas, expressed their delight and pride in the fact that the medical departments of the United States and of Great Britain were the first to effect an alliance, not only in the present war, but in history On Sunday, May 21, Colonel and Mrs Bradley entertained the officers at luncheon On Monday, May 21, the officers were received by the adjutant general and the commander-in-chief of the home forces, and commander of the troops in London On the following day the members of the unit were entertained at tea by Mrs Page at the American embassy and in the evening of May 23 the Rt Hon E G V, Earl of Derby, the secretary of state for war, and president of the Army Council, entertained the officers at dinner The officers were made honorary members of the Overseas Club, and the privileges of the American Women's Club and of various nurses' clubs were extended to the nurses In short, under the direction and personal attention of the members of a committee consisting of representatives of the British Medical Corps, every possible courtesy and aid was extended to the members of the unit A lieutenant-colonel of the Royal Army Medical Corps was detailed for duty with the unit during its London stay and was indefatigable in his attentions entertaining the senior officers at luncheon at the Senior Army and Navy Club By special invitation the nurses visited one of the great military hospitals of London and St Thomas Hospital, now in part a military hospital

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*The official censorship that this article has received makes it less interesting than would otherwise be the case

On the afternoon of the last day before the departure of the unit for its post in France its members were officially welcomed by the king and queen at Buckingham Palace The king made the following address

> It is with the utmost pleasure and satisfaction that the Queen and I welcome you here today We greet you as the first detachment of the American Army which has landed on our shores since your great Republic resolved to join the world struggle for the ideals of civilization We deeply appreciate this prompt and generous response to our needs It is characteristic of the humanity and chivalry which have ever been evinced by the American nation that the first assistance rendered to the Allies is in connection with the profession of healing and the work of mercy '

A personal greeting was then extended by both the king and queen to each member of the party individually the Prince of Wales and the Princess Mary adding their greeting to the officers

On May 24, the party left London for its post in France, being joined en route by the enlisted men from ————, and on May 25 arrived at ——— where a cordial and enthusiastic welcome was extended by the populace From the point of arrival the unit marched to its post of duty The official welcome to ——— was extended by the base commandant and the commandant of the port and the British and American consuls No 9 General Hospital of the British Expeditionary Force has been assigned to the American unit, and at this writing the members of the unit are being rapidly initiated into their new duties The commanding officer of this hospital had joined the detachment of Base Hospital No 4 at ——— and escorted the unit to its post here

Everywhere, from the moment of its arrival in England from the man on the street to the king the unit was most cordially greeted

PERSONNEL OF BASE HOSPITAL NO 4 U S ARMY (THE LAKESIDE CLEVELAND OHIO UNIT)

ADMINISTRATIVE STAFF

Major Harry L. Gilchrist Med Corps U S A Commanding Hospital
Capt Arnold D Tuttle Med Corps U S A Adjutant
Capt Titus E Sturgeon, Quartermaster, O R C. U S A Quartermaster—3

PROFESSIONAL STAFF

MEDICAL OFFICERS RESERVE CORPS U S ARMY
Major George W Crile Director
Major Charles F Hoover Assistant Director Medical Section
Major William E. Lower Assistant Director Surgical Section
Capt. Howard T Karsner Assistant Director, Laboratory Section
Capt. Henry L. Sanford Staff Surgeon
Captain Allen Graham Staff Surgeon
First Lieut. Harold K. Shawan, Staff Surgeon
First Lieut. Thomas P Shupe, Staff Surgeon
First Lieut. Walter B Rogers, Staff Surgeon
First Lieut. Benjamin I Harrison Staff Surgeon
First Lieut Drury Hinton, Staff Surgeon
First Lieut Sam Brock Staff Surgeon
First Lieut Richard Dexter Staff Physician
First Lieut Chester D Christie Staff Physician
First Lieut. Herbert V Weihrauch Staff Physician
First Lieut. Harry V Paryzek Staff Physician
First Lieut Marion A. Blankenhorn Staff Physician
First Lieut. Gordon N Morrill Orthopedist
First Lieut. Walter C. Hill, Roentgenologist
First Lieut. Arthur B Eisenbrey Bacteriologist
First Lieut William R. Barney Registrar—21
DENTAL OFFICERS RESERVE CORPS U S ARMY
First Lieut. Bertram S Rothwell Dentist
First Lieut. Alan MacLachlan Dentist
First Lieut. William S Sykes Anesthetist—3
RESERVE NURSES ACTIVE U S ARMY NURSE CORPS—64
CIVILIAN STAFF—4
MEDICAL DEPARTMENT U S ARMY (ATTACHED)—7
PRIVATES—149
TOTAL PERSONNEL—251

Public Health Service Experts to Protect Training Camps

The Public Health Service plans to place outside of each training camp a sanitary unit with medical specialists to make surveys of health conditions around these camps such as have already been made in the districts immediately surrounding the camps at Little Rock Ark , Memphis Tenn , Petersburg, Va , Quantico, S C, and Louisville, Ky The work to be accomplished varies for each camp but generally includes such measures as water supply, drainage, extermination of flies and mosquitoes and the general health of the neighborhood The Public Health Service is cooperating with state and local health boards in this work The passage of a bill now pending in the House of Representatives will provide additional men and funds required to carry on this work

Height Requirement for the Medical Department of the Army

A physician of Worcester Mass inquires whether a physician can obtain a waiver of one-fourth inch in height from the required 64 inches for admission in the regular Medical Corps of the Army or in the Reserve Corps

ANSWER—Under the new ruling in connection with the selective draft men will be admitted who are only 61 inches in height if otherwise physically capable

Exemption of Medical Reserve Officers from the Draft

Several physicians ask whether they will be exempt from the draft if they have filed application for the Medical Reserve Corps but have not received their commissions

ANSWER—No

Mental Tests for Soldiers

Plans have been taken up with the government for the establishment of an outpatient department at Camp Admiral by the officers of the Maryland Psychiatric Base Hospital Unit of which Dr A P Herring is chairman and Dr W R Dunton secretary The chief object of this department will be to examine soldiers for mental and nervous disorders and to arrange for their treatment, but specialists of various sorts of physical disease will also volunteer their services The purpose is to have volunteers go to the cantonment at stated intervals and with army surgeons conduct thorough mental tests and physical examinations The new psychopathic building at the Spring Grove State Hospital, designed for acute cases of mental disease has been offered to the government and if it is accepted patients from Camp Admiral will be treated there The psychopathic building will also be useful in treating soldiers returned from the front, 18 to 20 per cent of whom it has been found in England, are suffering from mental breakdown, temporary or permanent.

New England Contingent to Fort Oglethorpe

The 128 officers and men from the medical and sanitary units of the National Guard of New England have gone to Fort Oglethorpe, Ga to undergo intensive training in camp Of these Maine furnished 2 officers and 4 men, New Hampshire 5 officers and 13 men, Massachusetts, 15 officers and 46 men, Rhode Island, 3 officers and 13 men, and Connecticut 6 officers and 21 men All were mustered into federal service, June 24

Ordered to Service with Navy

The following medical officers of the United States Public Health Service have been ordered to report to the surgeon-general of the navy for duty Senior Surgs Fairfax Irwin, Philadelphia, Louis L Williams New York, and William J Pettus, Charleston, S C , Surgs Gregorio M Guiteras, Key West, Fla , George B Young Norfolk, Va , Mark J White, St Louis, Bolivar J Lloyd Seattle, and Arthur M Stimson, Washington D C , P Asst. Surg William M Bryan, Boston, and Asst Surg R. R. Spencer, Chicago

Hospital Donated for War Cripples

Mr and Mrs Charles D Freeman have given their 660 acre estate at Iselin, N J, to be used as a reconstruction hospital It is expected that the house will accommodate 250 patients when it is opened under the auspices of the American Red Cross in August Bungalow wards are to be built which will bring the capacity of the place up to 2 000 Dr Fred H Albee is to have charge of the undertaking

Orders to Officers of the Medical Corps

Major Albert G Love, M C, from Fort Gibbon, Alaska, to New York, N Y, medical supply depot

The sick leave granted Major William A Duncan, M C, is extended four months

Capt Howard Clarke, M C, to permanent duty with 8th Reserve Engineers

So much of Par 130, S O 143, June 21, War D, as relates to Capt W T Cade, Jr, M C, is revoked

Lieut Col William H Wilson, M C, to report in person to commanding general, Panama Canal Dept, for duty as surgeon of department

Lieut Col Jere B Clayton, M C, to Fort Sam Houston for duty as sanitary inspector of S D

Lieut Col Clarence J Manly, M C, to Fort Sam Houston as assistant to department surgeon and sanitary inspector of S D

Major Harold W Jones, M C, in addition to other duties, is detailed as professor of medical department administration at the Army Medical School, Washington, vice Col James D Glennan, relieved

Major Clarence H Connor, M C, to report to board at Washington for examination for promotion

Major Henry F Pipes, M C, from further station at Fort Slocum, N Y, for duty at Jefferson Barracks, Mo

Sergt 1st Class Davidson M Fleming, Med Dept, to Little Rock, Ark, and take station

Major L P Williamson, M C, to Pittsburgh, Pa, Baltimore, Md, and New Haven, Conn, for inspecting the work being done in the production of gas masks

Maj Edward B Vedder, M C, is detailed as a member of the board of medical officers appointed July 3, 1915, to determine the result of the preliminary examination of applicants and the final examination of candidates for admission to the Medical Corps, vice Col James D Glennan, Medical Corps, hereby relieved

Maj Harold W Jones, M C, will proceed to Watertown, N Y, for the purpose of inspecting ambulance bodies at the H H Babcock Co, Watertown, N Y, and upon the completion of this duty will return to his proper station

Capt W Cole Davis, M C, is relieved from further duty at the United States Military Academy, West Point, N Y, and will proceed to Wrightstown, N Y, take station, and act as camp sanitary officer during the period of construction of cantonment

Col George E Bushnell, M C, now on temporary duty in this city, is relieved from further duty at Fort Bayard, N Mex, and will report in person to the Surgeon General of the Army for duty in his office

Capt Charles W Haverkampf, M C, is relieved from duty at the United States Military Academy, West Point, N Y, and will proceed to Fort Oglethorpe, Ga, and report in person to the commanding officer of that post for duty as surgeon and also to take charge of the general hospital

Capt William T Cade, Jr, M C, will proceed to Atlanta, Ga, and report for duty as camp sanitary officer during the period of construction of cantonments

Orders to Officers of Medical Reserve Corps

ALASKA

To Allentown, Pa, Lieut R V Ellis, Douglas

CALIFORNIA

To Ft Gibson, Alaska, Lieut Walter E Leonard, Los Angeles

To Los Angeles for opening a school for instruction of officers in Roentgenology, Capt William B Bowman, Los Angeles

To report in person to commanding general Western Dept, for assignment to duty, Lieuts J M Rehfisch, Berkeley, J P Frizell, Ione, A E Boland, Needles, A C Magee, San Diego, H Abraham, L H Young, San Francisco and G W Burgess, Saratoga

The resignation of Major Wallace I Terry, San Francisco, is accepted

DISTRICT OF COLUMBIA

To Allentown, Pa, Lieut W F O'Donnell, Washington

To Army Medical School, Washington, D C, for instruction, Lieut E B Macon, Washington

To Walter Reed Hospital, Takoma Park, Lieut. W H Huntington, Washington

FLORIDA

To Allentown, Pa, Lieuts T G Croft, C L Jennings, Jacksonville, O F Green, Mayo, E E Strickland, Miccosukee, P L Goss, Mulberry, W J Vinson, Tarpon Springs and J O Phillips, Worthington Springs

To Ft Oglethorpe for instruction, Lieut Arthur L Izlar, Ocala

GEORGIA

To Allentown, Pa, Lieuts J A McAllister, Atlanta, G Burns, Douglas, J R Turner, Hickory Level, M E Perkins, Millen, H L Akridge, Sasser, J M Bryant, Savannah, and H J Morton, Waynesboro

To Ft McPherson, Lieut Herbert J Rosenberg, Atlanta

To Ft Oglethorpe, for instruction, Capt George T Horne, Augusta

IDAHO

To report by telegraph to commanding general, Western Dept San Francisco for duty, Lieut C S Moody, Hope

ILLINOIS

To Allentown, Pa, Lieuts C L Weber, Cairo, V Hays, Canton, E K J L Foley, V D Greer, E K M Griffiths, P E Hopkins, E K Langford, R H Lowry, Chicago, T Van Boyd, East St Louis, C L Garris, Eldorado, J F Wharton, Homewood, J C Kimball, Joliet, and H A Felts, Marion

To Ft Benjamin Harrison, Lieut T A Kreuser, Chicago, and Capt H L Thompson, Harrisburg

To his home and from further active duty, Capt Frank E Pierce, Chicago

To Ft Adams, for temporary duty, Lieut W H Evans, Murphysboro

To Army Medical School, Washington, D C, for instruction, Lieut. W L Smith, Toledo

INDIANA

To Allentown, Pa, Lieuts L A Elliott, Elkhart, F A Brayton, K L Craft, H A Shimp, W M Stout, Indianapolis, E M Shores, North Terre Haute, J G Kidd, Roann, and C R Hoy, Syracuse

To Ft Benjamin Harrison for instruction, Lieuts J H Willis, Evansville, and O A Newhouse, Montezuma

To Fort Benjamin Harrison, Lieut C K Jones, Indianapolis.

IOWA

To Ft Benjamin Harrison for instruction, Lieut J S McAtee, Council Bluffs

Honorably discharged, Lieut Frederick Binder, Corning

KANSAS

To Ft Riley for instruction, Lieut E King, Ft Leavenworth.

To Fort Riley, Capt John W Turner, Fort Riley

MAINE

To Army Medical School, Washington, D C, for instruction, Lieuts D E Dolloff, Biddeford, and William C Whitmore, Portland

MARYLAND

To Allentown, Pa, Lieuts E A Looper and G P Ross, Baltimore

To Army Medical School, Washington, D C, for instruction, Lieut H P Makel, Baltimore

To Ft Oglethorpe, board of examiners for tuberculosis at the civilian training camp, Capts. Joseph A Chatard, Clement A Penrose, and Lieut. John T King, Jr, Baltimore For instruction, Capt. T K. Conrad, Chevy Chase

MASSACHUSETTS

To Allentown, Pa, Lieut M R Kendall, Boston

To Ft Banks, Mass, Lieut George H Burke, Springfield

To Ft Terry, N Y, Capt Isaac S F Dodd, Pittsfield, and Lieut Homer Gage, Worcester

To Ft Warren, Mass, Lieut W M Crandall, Lawrence.

Honorably discharged, Lieut Augustus Riley, Boston

To Fort Terry, N Y, Lieut Frank A Davis, Boston.

Honorably discharged, Lieut Henry L Davis, Lynn

MICHIGAN

To Allentown, Pa, Lieut. R G Edgar, Clarkston

With Red Cross Ambulance Co No 11, Capt James T Case, and Lieut Asa C McCurdy, Battle Creek

To Army Medical School, Washington, D C, for instruction, Lieut Curtis D Pillsbury, Ann Arbor

Honorably discharged, Capt Hugo A Freund, Detroit

MINNESOTA

To Allentown, Pa., Lieut L. G Smith, Montevideo

To Ft Riley, Lieut. David M Berkman, Rochester

To Sparta, Wis, Lieuts J. J Catlin, Buffalo, and G D Rice, St Cloud

MISSISSIPPI

To Atlanta, Ga, for duty in connection with the organization of American Red Cross Ambulance Co No 20, Lieut. W C Brewer, Columbia

MISSOURI

To Allentown, Pa, Lieuts L J Ferguson, Brookfield, G R Dagg, North Kansas City, W A Fair, Pleasant Hill, E K Dixon, St Louis, and J A Powers, Warrensburg

To Ft Benjamin Harrison, Capt Paul R Fletcher, St Louis.

To Ft Riley, for instruction, Lieut G A Tull, Kansas City

To report to 20th Field Art, Camp Wilson, Ft Sam Houston for duty, Lieut. William A Delzill, Springfield

MONTANA

To report by telegraph to commanding general, Western Dept, San Francisco for duty, Lieut W N King, Victor

NEBRASKA

To home, Lieut J M Shramek, Omaha

NEVADA

To report by telegraph to commanding general, Western Dept, San Francisco for duty, Lieut H Ostroff, Reno

NEW HAMPSHIRE

To Boston Base Hospital No 6 (Massachusetts General Hospital, Capt Robert W Holmes, Keene

To West Point, N Y, Lieut S Miller, Manchester

NEW JERSEY

To Allentown, Pa, Lieuts T Reed, Atlantic City, N B Leggett, Morristown, and H G Walker, Wycoff

To Allentown, Pa, Lieut C W Thomas, Woodstown

To Richmond, Va, for instruction in military roentgenology, Lieut James B Edwards, Leonia

Par 50, S O 145, June 23, 1917, War D, as related to Lieut Harry Stein, Paterson, is revoked

NEW YORK

To Allentown Pa Lieuts M C Wilson Brownsville D O Lyon Mt Vernon A H Williamson New York City Capt F Dowdle Oswego Lieuts L J Allen Rochester, and C B Witter Schenectady

To Army Medical School Washington D C for instruction Lieuts J O Parramore, Mt McGregor Alan Del Smith, and L R Eastor New York N Y

To Balboa Heights C Z for duty, Capt Robt L Loughran New York N Y

To Ft Oglethorpe for instruction Major Richard Derby New York, N Y

To Ft Strong Mass Lieut Warren Wooden Rochester

To Ft Terry N Y Lieuts Abraham Ginsburg, and Ruel B Kariobe New York N Y

To Rockefeller Institute for Medical Research, New York N Y Major Simon Flexner, New York N Y

To active duty as instructor in Roentgenology in New York City Major Lewis C Cole, New York, N Y

To report to Surgeon General of Army for duty, Major H D Corbusier, New York N Y

To Washington D C, for instruction Lieut Edmund B Spaeth Elmira

So much of Par 105 S O 134, June 11 War D as relates to Lieuts G K Rhodes and L F Devoe New York N Y is revoked

To home Major T W Hastings New York N Y

To home and honorably discharged Lieut Stanley W Pallister, Brooklyn

Honorably discharged Lieut I S Child Jefferson

To Army Medical School Washington D C for instruction Capt J E Donnelly New York

NORTH CAROLINA

To Ft Oglethorpe for instruction, Lieut J Thames Wilmington

To Richmond Va for instruction in military roentgenology Lieut F R Wrenn Silver City

The resignation of Lieut Rigdon O Dees Greensboro is accepted

OKLAHOMA

To Washington D C for instruction Lieut David D Paulus Oklahoma City

OHIO

To Allentown Pa Lieuts W S Chamberlain E D Dowds T R Kennerdell Cleveland and C P Whitwham, Toledo

To Army Medical School Washington, D C for instruction Lieut E A Fennell Cincinnati

To Cleveland Ohio for duty with Ambulance Co No 4 Lieuts R P Forbes J E McClelland and H O Ruh Cleveland

To Washington D C for instruction Lieut Harold O Brown Cincinnati

To home Lieut Orville T Manley Cleveland

To home Lieut Townsend H Dickinson, Germantown

Honorably discharged Capt Charles W Stone Camp Perry

OREGON

To report by telegraph to commanding general, Western Dept San Francisco for duty Capt. A A Finch Astoria

PENNSYLVANIA

To Allentown Pa Lieuts H O Jones, Altoona A G Beckley, J W Dennin C L Fulmer, T G Schnabel Philadelphia and H H Thompson Philipsburg

To Ft. Niagara N Y, board of examiners for tuberculosis at the civilian training camp Capt Milton H Fussell Lieuts Augustus A Eshner and David Riesman Philadelphia

To Ft. Oglethorpe Lieuts L H Bernd Theodore LeBoutillier Philadelphia and O A Jones Sharon

To Allentown Pa Lieuts A D Ferguson Philadelphia and C W Page, Pittsburgh

To Army Medical School Washington D C for instruction Lieut F H Wells Chester Springs

To Fort Ontario N Y Lieut J P Burns Philadelphia

TEXAS

To Cornell Medical College New York N Y for instruction in military roentgenology Lieut. E V Powell Ft. Worth

To Sparta Wis Capt R K Cole Dallas

SOUTH DAKOTA

To Allentown Pa. Lieut L M Field Aberdeen

UTAH

To Allentown Pa Lieut. J M Graham Fruita

VIRGINIA

To Gettysburg Pa Capt Robert S Spilman Norfolk.

WASHINGTON

To Ft Riley for instruction Capt. S E Lambert Spokane

To report by telegraph to commanding general, Western Dept San Francisco for duty Capt. C T Dublin, No Yakima and Lieut F J Horsfall, Seattle

To report by telegraph to commanding general Western Department San Francisco for duty Lieut H C Burson Seattle

WEST VIRGINIA

To home Lieut. William C Moser Morgantown

WISCONSIN

To Sparta Wis Lieuts C O Decker, Crandon G R Randall Milwaukee J W Monsted New London C. H Nims Oshkosh E. G Festerling Reedsville and E. W Hanson Three Lakes

To report for duty by telegraph to commanding general Western Dept, San Francisco Lieut F Rose Coleman

AT FORT BENJAMIN HARRISON

Fort Benjamin Harrison some 14 miles out of Indianapolis, includes one of the training camps for medical reserve officers There were at this post, July 14, between 13,000 and 15 000 soldiers representing practically every branch of army service The camp is the scene of continuous activity The days are full of active work and the nights are full of study, recreation and sleep—mostly sleep, and sound sleep The whole camp qualifies easily as one of the wonders of modern army construction

POST HOSPITAL

The post hospital is well fitted with modern equipment and the arrangements are well-nigh perfect Outside the hospital special buildings have been constructed for contagious cases, and for the housing of enlisted personnel Opposite the post hospital is a quarantine camp in which troops arriving from other posts where infectious disease exists, are detained

THE TRAINING CAMP FOR MEDICAL OFFICERS

But we are especially concerned with the training camp for medical officers At the time of this writing—July 13—there are in the camp about 700 medical officers, of whom over four fifths are in the training camp There are in all 2 500 men in the medical department including the medical officers field hospitals, and ambulance companies

THE BARRACKS

The medical officers' barracks house some fifty to fifty-five men each The barracks were constructed originally with a view to housing 600 men, but were found inadequate for this purpose so that between the barracks are tents occupied by medical officers of the National Guard Each two barracks has a separate mess hall, and a building containing shower baths with hot and cold water, urinals and latrines Everything is flyproof—screened in—and conspicuously new and clean The men sleep on their folding cots, which are in two rows the length of the barracks, and about 2 feet apart An aisle about 4 feet wide runs down the center There is excellent through and through ventilation The barracks are lighted by electricity but at first the light was hardly adequate to permit intensive night study without some inconvenience Later the lights were replaced by bulbs of a higher candle power, and this condition, which was perhaps the only source of complaint, is now fully corrected In one barracks the men invested in special incandescent bulbs of their own selection

THE MESS

The mess is excellent The men get what *they* want and what they pay for, the cost being 75 cents to $1 a day per man When the men arrived the only mess equipment was that issued, the ordinary soldiers mess kit Most companies bought their own table service—usually granite ware cups and plates One affluent company spent $150 on china and so-called "silver" mess equipment which they will either donate bequeath or sell to their successors in camp The cost and quality of whatever is served meets with flattering treatment in that it is usually wholly consumed

STUDY AND LECTURE

The men are organized in four companies, some serving for short periods as officers The days are full of study and drill and lectures and as one man expressed it—"something is doing all the time." In one afternoon there may be French lesson, drill, a lecture on map-making accompanied by the opportunity to go over the surrounding country and indulge in practical work, a lecture on the physics, economics and other intricacies of the horse and the army mule with practical examples, book quizzes, "paper work," more drill, first aid tent pitching customs of the service, and what not

One custom of the camp which has met with approval is that of wearing only the U S R and the caduceus, insignia of rank not being worn except when visiting the city As one officer said, 'Here, for the present, we are all cadets"

RECREATION

The evenings are spent in study, in walks through the camp and the surrounding country-side, in auto rides on the excellent boulevarded roads and in an occasional trip to the city The permanent barracks are the center of camp life Here at night are lectures, concerts motion pictures and vaudeville entertainments The medical officers are conspicuous in the streets of the city by their absence, rarely does one see the caduceus on the shirt of any of the numerous uniformed men on the streets of the city One medical officer remarked "No, we don't go into town much I haven't been in but once since we've been here There's so much to learn and to do, so much to see right here in camp, that a trip to the city is more of a bother than a pleasure"

THE SPIRIT OF THE MEN

One of the instructing officers requested that particular attention be called to the wonderful spirit among the medical officers, and particularly among the enlisted men ' There has been no serious breach of discipline among the 2,500 men in the medical department during the entire time that the camp has been in operation It is this spirit of earnest cooperation and realization of the serious nature of the business ahead which has encouraged the superior officers to enjoy their work and which has made the camp the wonderful achievement that it is

The following men were in the training camp for medical reserve officers at Fort Benjamin Harrison on July 13

ARIZONA

Evans, Roy K, Douglas

CALIFORNIA

Oliver, Jean R, San Francisco

COLORADO

McDonald, Wm J, Fowler
Blackmore, Richard, Farmington

CONNECTICUT

Irwin, Vincent J, Jr, Granby
Griswold, Matthew H Kensington
Harvey Carl C, Middletown
Goodridge, F G, Pomfret Center
McGaughey J D, Wallingford
Dye, John Sinclair, Waterbury

GEORGIA

Cranston, William J, Augusta

ILLINOIS

Hastings, James B, Alton
Dallenbach, John C, Champaign
Bernart, Wm F, Chicago
Bremerman, Lewis W, Chicago
Britton, James A, Chicago
Clark, Wm A, Chicago
Cox, Roy H, Chicago
Deacon, Frank, Chicago
Fisher, Erle F, Chicago
Foley, Thomas P, Chicago
Geiger, Arthur H, Chicago
Irons, Ernest E, Chicago
Kreuser, Theo A, Chicago
Kuhns, Ralph H, Chicago
Larkin, Wm R, Chicago
Mayers, Lawrence H, Chicago
Miller, Edwin M, Chicago
Miller, George W, Chicago
Moss, Eli B, Chicago
Musselman, George H, Chicago
Robison, William T, Chicago
Tarnowsky, Geo de, Chicago
Wilder, Russell M, Chicago
David, Vernon C, Evanston
Iterman, G E, Griggsville
Butner, Andrew J, Harrisburg
Thompson, H L, Harrisburg
Kreml, Otto A, Joliet
Cook, Charles E, Mendota
Kendall, Wm E, New Holland
Coen, Walter W, Springfield

INDIANA

Collins, Albert W, Anderson
Hunt, Lee I, Anderson
Beckett, Clinton G, Attica
Hines, Dorsey M, Auburn
Reese, Forest L, Bicknell
Samples, John T, Boonville
Line, Homer E, Chili
Redman, L H, Elizabethtown
Ehrich, Wm S, Evansville
Willis, Joseph H, Evansville
Clay, L R, Ft. Benj Harrison
Edwards, T, Ft. Benj Harrison
Hanna, Carl, Ft Benj Harrison
Kersten, P, Ft Benj Harrison
Meader, F M, Ft Benj Harrison
Edlavitch, B M, Fort Wayne
Fauve, Adrian E, Fort Wayne
Johnson, Robert C, Frankfort
Titus, John M, Hebron
Krebs, Maurice H, Huntington
Daggy, B T, Indianapolis
Doeppers, Wm A., Indianapolis
Ducworth, J W, Indianapolis
Guthrie, George L, Indianapolis
Hickson, Fred E, Indianapolis
Hypes, Francis E, Indianapolis
Pettijohn, B B, Indianapolis
Shipp, Floyd M, Indianapolis
Thixton, E DeB, Indianapolis
Titus, Elton M, Indianapolis
Wales, Ernest Dew, Indianapolis
Warpel, Fredk. C, Indianapolis
Wayman, Cecil L, Indianapolis
Storms, Roy B, Kempton
Thompson, B A., Kokomo
Troutman, R E, Logansport
McQuown, Otis W, Marion
Magenheimer, V A., Mooresville
Cox, Harold B, Morristown
Thompson, H H, Noblesville
Tucker, Fredk., Noblesville
Beaman, Z M, North Manchester
Lynch, Otho Rees Peru
Van Mater, Geo C, Peru
Tucker, Carroll J, Rushville
Jewett, Earl D, Saint Paul
Myers, Edgar H, South Bend
Higbee, Paul, Sullivan
Scott, Garland D, Sullivan
Alexander, O O Terre Haute
Carpenter, G C, Terre Haute
Stout, E T, Upland
Jewett, L E, Wabash
Whisler, Fredk M, Wabash
Hoffman Robert Lee, Wichita
Moser, Elmer B, Windfall
Lee Geo W, Yates Center

MAINE

Bliss, Raymond V N, Blue Hill
Webster, Harrison B, Castine
Flint, Edgar T, Foxcroft
Cummings, Edson S, Lewiston
Haskell, Alfred W, Portland
Millikin, John S, Readfield

MASSACHUSETTS

Bowen, James F, Amherst
Boardman, Wm P, Boston
Cochrane, Robert C, Boston
Fraser, Somers, Boston
Frothingham, C, Boston
Goulding, Timothy F, Boston
Janney, James C., Boston
Mahoney, Daniel F, Boston
Mahoney, John L, Boston
Medalia, Leon S, Boston
Ohler, William R, Boston
Reese, John A, Boston
Carr, Arthur W, Bridgewater
Cady, F B M, Cambridge
Lanpher, Howard A., Chester
Gallagher, J H C, Chicopee
Mannix, Louis, Chicopee Falls
Emmons, Arthur B, Dover
Simmons, R H, Fall River
Kearney, John H, Fitchburg
Peters, J D, Great Barrington
Whelan, Chas, Hingham
Beckley, C C, Lancaster
Pfeiffer, Albert, Lexington
Pulsifer Nathan Lowell
Breed, Nathaniel P, Lynn
Merrill, Charles H, Lynn
Sanborn, Frederick R, Lynn
Latham, Benoni M, Mansfield
Pease, Charles W, Needham
Collins, J D, Northampton
Collins, Wm J, Northampton
Byrnes, Harry F, Springfield
Cort, Parker M, Springfield
Maloney, John M, Springfield
Rumrill, Samuel D, Springfield
Smith, Endix T, Jr, Springfield
Dennen, Ralph W, Waltham
Hollings, Chas B, Waverly
Chisholm, Miles D Westfield
Howard, Fred H, Williamstown
Hollis, Fredk, Williamstown
Simmons, E B, Worcester

MICHIGAN

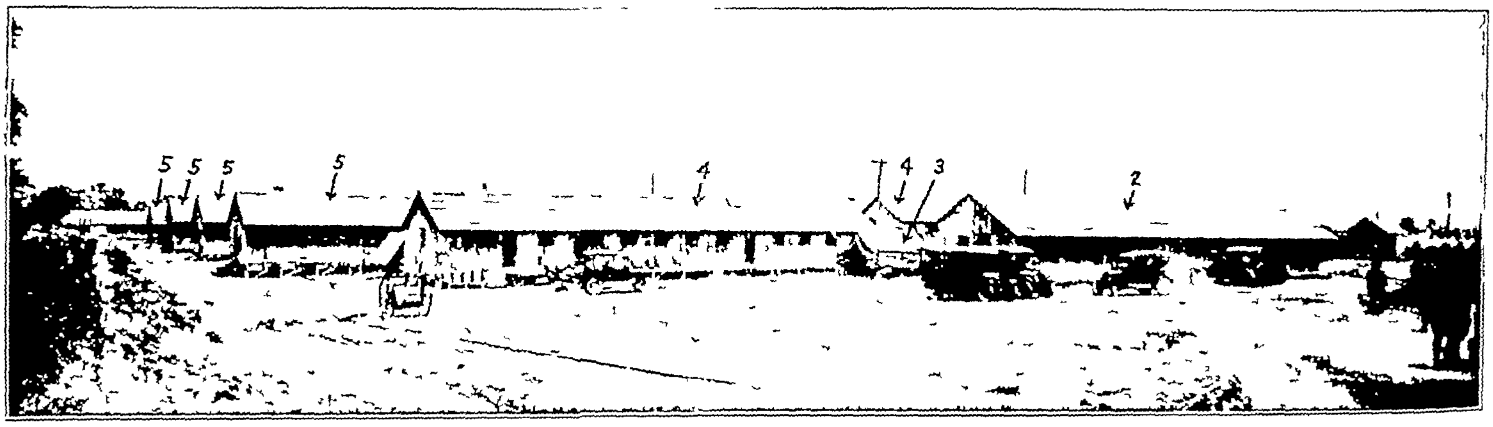
Chase, Artemus W, Adrian
Lochner, George M, Adrian
Krafs, Rollan W, Ann Arbor
Malejan, Harry M, Ann Arbor
Wile, Udo J Ann Arbor
Van Camp, Elijah, Athens
Beuker, Bernard J, Atwood
Murphy, Norman D, Bangor
Morrill, W P, Benton Harbor
Slattery, Matthew R., Bay City
Fisher, Francis G, Cannonsburg
Babcock, Warren L, Detroit
Baeslack, Fredk W, Detroit
Buck, John D, Detroit
Dreyer, Adolph E, Detroit
McCord, Carey P, Detroit
Newberry, Frederick H, Detroit
Stapleton Wm J, Jr, Detroit
Suggs, Frank, Detroit
Du Bois, Wm J, Grand Rapids
Martin, Alex Morrison, G Rapids
Adams, DeWitt C, Highland Pk.
Foden, Geo S, Highland Park
Kitson, Verner H, Ionia
Burt, Clarence Edward, Ithaca
Cooley, Randal M, Jackson
Leland, Roscoe G, Kalamazoo
Willey, Gordon F, Kalamazoo
Holm, M L, Lansing
Shaw, Milton, Lansing
Waters, Geo, Memphis
Mackenzie, Alex. J, Port Huron
Silshy, Don H, St. Johns
Winslow, R. C, Sault Ste Marie
Woodlock, Lawrence, Stockbridge
Crane, Chas V, Tawas City
Martin, Jas R, Traverse City

MISSOURI

Chandeysson, Pierre I, St. Louis
Fletcher, Paul R, St. Louis

NEW YORK

Cochrane, Harold D, Albany
Douglas, Malcolm, Albany
Papen, Geo W, Jr, Albany
Tebbutt, Harry K, Albany
Vanderveer, James N, Albany
Van Campen, Benj, Olean
Preston, Willard De Forest, Attica
Coopernail, Geo P, Bedford
Allerton, S M, Binghamton
Hooks, Don M, Binghamton
Ackerman, Stephen H, Brooklyn
Brown, Francis X, Brooklyn
Byrne, John B Jr, Brooklyn
Coogan, Wm. J, Brooklyn
Dexter, Thurston T, Brooklyn
Feinblatt, Henry M, Brooklyn
Gill, Chas R, Brooklyn
Harding, Read B Brooklyn
Harris, Harry C, Brooklyn
Hauff, John J, Brooklyn
Helprin, Benjamin E, Brooklyn
Kane, Arthur M, Brooklyn
Laing, Wm W Brooklyn
McGraw, Russell J, Brooklyn
McQuillin, John P, Brooklyn
Moore, F W, Brooklyn
Norton, H L, Brooklyn
Reynolds, Robert J, Brooklyn
Robertson, R S, Brooklyn
Rosenfeld, Joseph, Brooklyn
Grabau, John C, Buffalo
Sparck, Joseph, Castleton Corners
Allen, George S, Clyde
Beattie, Joseph H, Dobbs Ferry
Hicks, Wm M, Durham
Hovey, Walton, Fairport
Tepper, Abram S, Far Rockaway
MacNeal, Ward J, Forest Hills
Allen, Jas. S, Geneva
Sloat, Harrison G, Glen Cove
Byrne, David C, Jr, Great Neck
Parsons, Alfred H, Great Neck
Tilden, Walter C, Hartsdale
Hayes, Floyd W, Jamestown
Holcombe Frank M, Keeseville
Steckel, Harry A, Kings Park
Snyder, Fredk, Kingston
Boettiger, Carl, Long Island
Kilcourse, J J, Long Island City
Mencken H P, Long Island City
Ashley, Harmon H, Machias
Clark, Edw M, Mamaroneck
Ballantyne, Reg M, Manlius
Donovan, Jas. C Middletown
Shelley, Hilton J, Middletown



A BIRD'S EYE VIEW OF THE TRAINING CAMP FOR MEDICAL OFFICERS AT FORT BENJAMIN HARRISON 1 AN AMBULANCE COMPANY 2 HEADQUARTERS BUILDING 3 TENTS USED FOR MEDICAL OFFICERS OF NATIONAL GUARD 4 MESS HALL 5 BARRACKS FOR MEDICAL RESERVE OFFICERS

Coghlan, Jasper W, Newark
Baehr, Geo, New York
Beer Edwin, New York City
Belden, L. de K New York City
Berens, C., Jr New York City
Bles, Chas B D New York City
Bolling R W, New York City
Bradner, J C New York City
Braun, Alfred, New York City
Brewster H D, New York City
Brinsmade, D B, New York City
Busby, A H, New York City
Caccini, A M, New York City
Cairns, D W New York City
Celler, Herbert New York City
Clark Abram S New York City
Cohn Sidney, New York City
Cohe E N Jr New York City
Connely E McC New York City
Cornwall L H New York City
Dalton, Wm A New York City
De Voe Leon F New York City
Dugdale A H, New York City
Eckert M M New York City
Eliasberg B H New York City
Everingham, S New York City
Framb Robert T New York City
Geist S H, New York City
Gere J B, New York City
Gerster J C A, New York City
Girsdansky New York City
Gottlieb Chas New York City
Gray C. P, New York City
Hartshorne W M New York City
Held B J New York City
Hetrick L. E, New York City
Holt R R New York City
Hooker R S New York City
Horowitz B S New York City
Imperatori, C. J New York City
Jaches L, New York City
Jameson J W New York City
Jones Lewis P New York City
Kaplan D M New York City
Kent James M New York City

Phillips B G, New York City
Toll, Daniel New York City
Pool, E H, New York City
Rhodes C K, New York City
Kiley Hugh A New York City
Kuddy W P J, New York City
Satterlee, H S, New York City
Selinger, C H S, New York City
Strowger, C W, New York City
Turner, Reeve, New York City
Van Ingen, P, New York City
Varner, H H New York City
Wallace, K, New York City
Warner J W, New York City
Weil R, New York City
Miller G L Niagara Falls
Meeker, J F, Ogdensburg
Albertson H S Oswego
Rawlson Ira A, Plattsburg
Cromwell C D Poughkeepsie

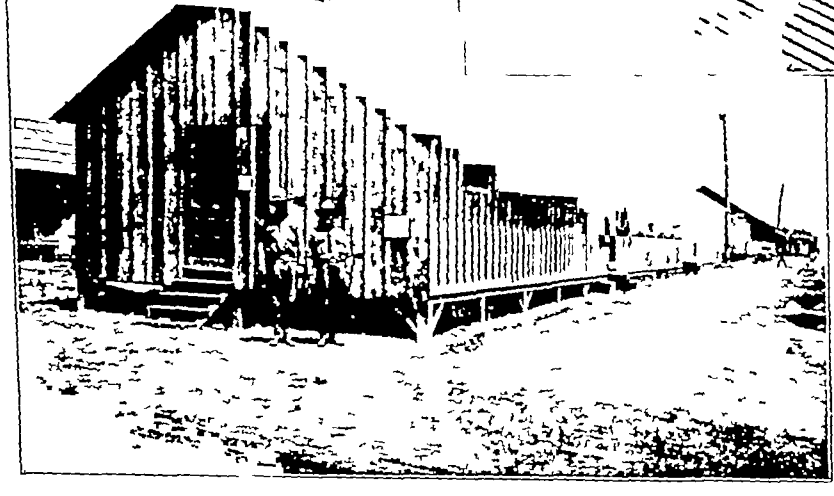
Murbach, Clarence I, Archbold
Conard Robert Blanchester
Boyle Frank V, Bowling Green
Caton, Russell J, Bucyrus
Lane Fred W, Cambridge
Shipley Ralph T Carrollton
Applegate, Mat M, Cincinnati
Deneen, De Fama D, Cincinnati
Metz Charles W Cincinnati
Paden Russell H, Cincinnati
Rhodes Goodrich B Cincinnati
Ware H J, Cincinnati
Jackson, Harry D, Circleville
Boutwell Joseph H, Cleveland
Burstein Theodore Cleveland
MacFarland Chas H Cleveland
Marine David, Cleveland
Wagner Harold I, Cleveland
Albanese, Nicholas A Columbus
Boucher Howard F Columbus

Klein, Elmer A Norwood
Neal, Charles A, Norwood
Kennedy, Edwin J, Peebles
Haley, Michail R, Piqua
Teeter, Judson, Pleasanthill
Caldwell, John R, Rayland
Biddle, Victor, Steubenville
Dryer, Charles, Toledo
Eyestone, Fred L, Toledo
Harrison Jay M, Toledo
Church, Charles G, Van Wert
Ailes, Melville D, Warren
Waller Chester C Warren
Hartmann, Carl F, Wauseon
McCurdy, Sidney M, Youngstown
Meyer, Nathan N, Youngstown
Painter, Albin M, Youngstown

OREGO

Osborn C C, Portland

SHOWER BATHS



EXTERIOR OF BARRACKS USED FOR MEDICAL RESERVE OFFICERS

King Jos E J New York City
Kopetsky, Sam. J, New York City
Larson, H. M New York City
Loeb Max L, New York City
Lyle, H H N New York City
Lyttle, John D New York City
MacGuire C, New York City
McBurney, W, New York City
McHenry J H, New York City
McMillin M B New York City
Mead T F New York City
Myer L B New York City
Morgan W A, New York City
Morison R. A. New York City
Morrow A. S New York City
Murphy J J New York City
Nicolson, Wm P New York City
Oppenheimer, B S N York City
Palmer S D New York City
Pease, M C New York City

Child, Frank S Port Jefferson
Boddy, Edm C, Rochester
Bowen Albert, Rochester
Gage, Geo H Rochester
Nacey, Lawrence J Rochester
Hoeffler John C Salamanca
Phillips E. W, Savannah
Mullens, C E., Slingerlands
Selover, Charles W, Stanley
Rapuzzi Jos, Staten Island
Wiggin, Dayton C. Staten Island
Ballantyne L W, Syracuse
Schwartz Seymour C, Syracuse
Farmer Harlow G Watertown
Lord Lester W West Ossipee
Benedict Albert N, Yonkers

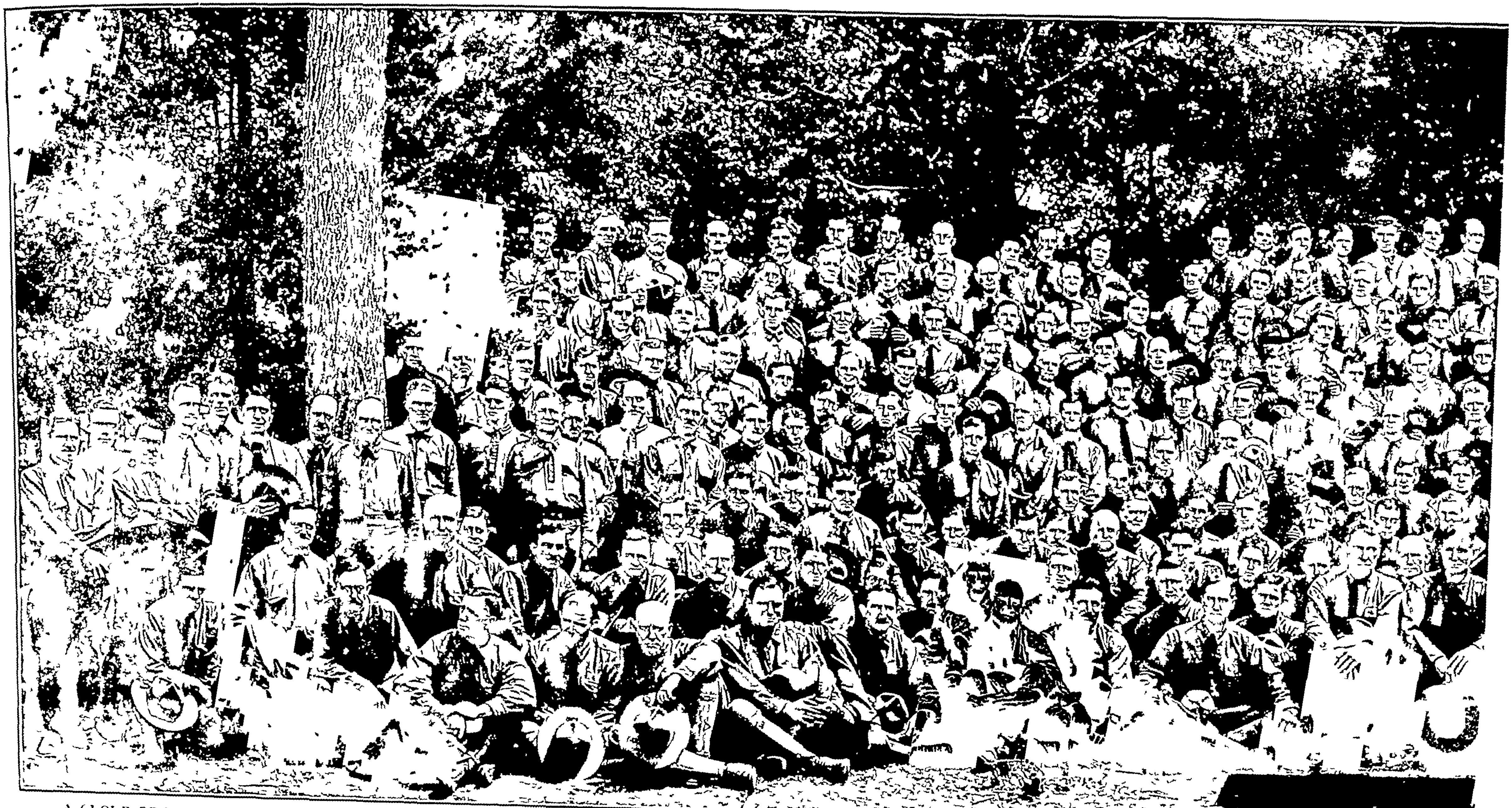
OHIO

Barnard, Benj C, Alliance
Ramsey P M Alliance

McClelland Chas E Columbus
McDowell, John R Columbus
Osborn Morse F Columbus
Smith Eduard E, Columbus
Hewitt, Archie E, Dayton
Kislig Fred K, Dayton
Mansur, Wm B, Dayton
Wilson, Roy A Dennison
Metcalf, Henry M Elyria
Smith Arthur B Elyria
Cass James W Farmer
Dickinson, T H Germantown
Lantz James M Lancaster
Kerr George M, Lilly Chapel
Hay Virgil H., Lima
Hibbard Burt Lima
Bennett Herbert W, Lisbon
Christopher Harry V London
Shawecker K E, N Philadelphia
Gill Robert C Norwalk

PENNSYLVANIA

Hendricks Chas S Bolivar
Bulgar, Alvine Braddock
McKibbon Jas M, Buck Valley
Little Theodore Alvin, Corry
Hemphill David E Curtisville
Good John L, Harrisburg
Sharpe John S, Haverford
Buckley R Emerson Hazleton
Shafer, Charles L Kingston
Boger, John D Lancaster
Davis, Henry B Lancaster
Thomas Lauren Datrobe
Lamb, Harold Mercer
Linn Charles F, Monongahela
Workman, Wm M Mt Joy
Harper, Howard C New Castle
Burg, S S Northumberland
Schwartz, Grover C Perkasie
Barron, Charles A Philadelphia
Bertolet, John A Philadelphia
Bohn Zera E, Philadelphia
Cole Albert N Philadelphia
Conrad G W H Philadelphia
Cornell, Walter S, Philadelphia
Crampton George S, Philadelphia
Devereux, Robt T, Philadelphia
Elliott John D Philadelphia
Felterman W B, Philadelphia
Franklin Melvin M, Philadelphia
Guilfoyle, Wm. F, Philadelphia
Hibsmann, Henry H, Philadelphia
Kieffer Geo C., Philadelphia
Leopold Samuel, Philadelphia
Lermann Wm W Philadelphia
Lawrence J S Philadelphia
Lewis, Clarence J Philadelphia
Lucke B H E W Philadelphia
Lynch, John J, Philadelphia
Lynch Wm J, Philadelphia
Massey, Bradford Philadelphia
McCloskey, E W, Philadelphia
Medley John E Philadelphia
Merscher W Philadelphia
Ross Thos C, Philadelphia



A GROUP OF MEDICAL OFFICERS IN THE TRAINING CAMP FOR MEDICAL RESERVE OFFICERS AT FORT BENJAMIN HARRISON AT THE EXTREME RIGHT IN THE LOWER ROW IS MAJOR PERCY M ASHBURN CHIEF OFFICER TO HIS LEFT IS MAJOR GEORGE H SCOTT

A GROUP OF MEDICAL OFFICERS IN THE TRAINING CAMP FOR MEDICAL RESERVE OFFICERS AT FORT BENJAMIN HARRISON AT THE EXTREME LEFT OF THE LOWER ROW IS MAJOR JAY R SHOOK TO HIS RIGHT IS CAPT TAYLOR EUGENE DARBY BACK OF MAJOR SHOOK IS CAPT HOWARD M SNYDER

(This illustration and the one above were in one group which was separated into two sections for reproduction)

Ryan, Wm C, Philadelphia
Sheaff, Phillip A, Philadelphia
Stimson, C M, Philadelphia
Tassman, Isaac, Philadelphia
Winter, Karl D, Philadelphia
Zulick, Jay D, Philadelphia
Ferner, Jos J, Pittsburgh
Frank, Austin C, Pittsburgh
Hamilton, Sam, Jr, Pittsburgh
Jackson, Daniel F, Pittsburgh
Jackson, Elmer C, Pittsburgh
Lindsay, J A, Pittsburgh
Proescher, Frederick, Pittsburgh
Van Kirk, Vite E, Pittsburgh
Vaux, Carey J, Pittsburgh
Toland, William A, Pottstown
Longwell, Benj J Seminole
Shaffer, Fred B, Somerset
Mackey, Robert B, Waverly
Pleasants, H, Jr, West Chester
Reichard, Simon W, Wilkes Barre
Hill, Ralph L, Woodville
Gordon, Edward J, Wyncote

RHODE ISLAND

Holt, Chas H, Pawtucket
Gardner, George W, Providence
Jordan, H P B, Providence
Noyes, Ira H, Providence
Christie, Chas S, River Point
Donnell, C E, Tulia

VERMONT

White, Wm H, North Troy
Pond, Arlington, Rutland

VIRGINIA

Blanton, Wyndham B, Richmond

WASHINGTON

Van Kirk, Asher W, Elberton
Booth, John R, Seattle

WEST VIRGINIA

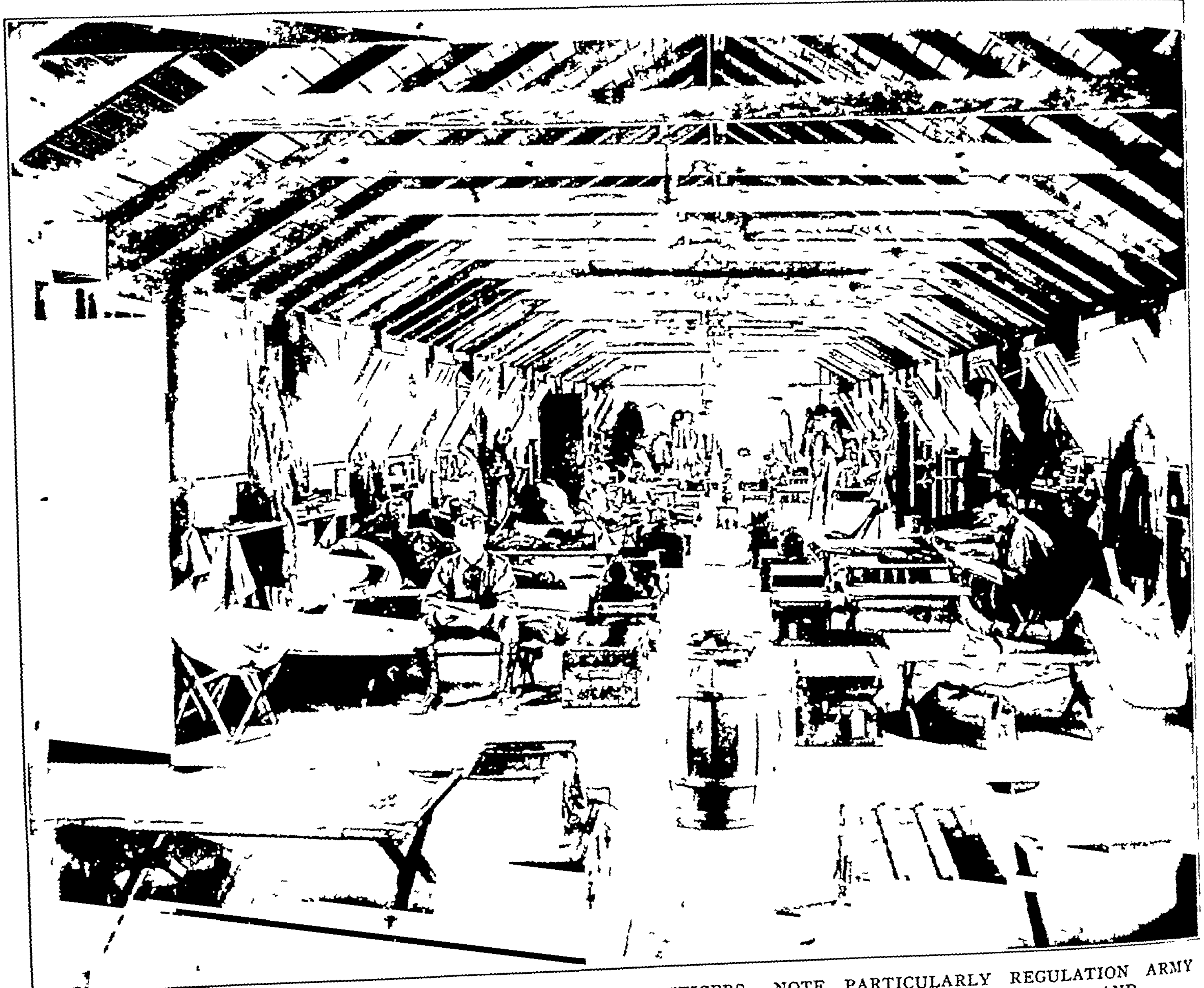
Rusmissell, J A, Buckhannon
Pettry, Benjamin L, Dorothy
James, Maurice C, Hinton
Kearns, Frank M, Hundred
Keatley, Harry W, Hnutington
Lyons Joseph W, Huntington
Price Norman R, Marlinton
Eanes, Richard H, Widen

WISCONSIN

Vogel Carl C, Elroy
Longley, Jonas R, Fond du Lac
Mix, Harry C, Green Bay
Sinn, George, Green Bay
Shimek, Adolf J, Manitowoc
Vander Veer Jas N, Martell
Darling, F E, Milwaukee
Wilkinson, M R, Aconomowac
Scantleton, John M, Sparta
Bellis Glenford L., Wanwatosa
Huges, C W, Winneconne

CANAL ZONE

Evans, Forrest M, Balboa



INTERIOR OF BARRACKS USED FOR MEDICAL RESERVE OFFICERS NOTE PARTICULARLY REGULATION ARMY FOLDING COT, REGULATION ARMY TRUNK AT FOOT OF BED, BEDDING ROLL, SCREENING AND VENTILATION THIS PICTURE WAS TAKEN AFTER SOME 200 MEN WERE ORDERED AWAY FOR TEMPORARY DUTY ELSEWHERE

The following men were at Fort Benjamin Harrison but were ordered elsewhere Most of them probably have gone for service abroad, some to other stations, a few have been ordered home and honorably discharged

CALIFORNIA

Chapin, W A R, Pasadena

ILLINOIS

Pierce, Frank E, Chicago
Uullman, H J, Highland Park
Richman, S H, Oak Forest
Pettit, Rosvell T, Ottawa
Griswold, R W, Pitchfield

INDIANA

Campbell, C C, Indianapolis
Clevenger, W F, Indianapolis
Coble, Paul B, Indianapolis
Dubois, Edward J, Indianapolis
McElroy, Jesse L, Indianapolis
Chenoweth, E B C, Nineveh

MAINE

Hill, Paul S Biddeford
Hayden, L B, Livermore Falls
Anderson, W D, Portland

MASSACHUSETTS

Riley Augustus, Boston
Watt, Charles H, Fall River
Tucker W M, Hinsdale
Rochford R A Springfield
Kelly Harvey A Winthrop

MICHIGAN

Hammel Harry H, Ann Arbor
Washburne C L Ann Arbor
Clarl Harold E Detroit
Freund Hugo A Detroit
Honor, W H, Wyandotte

NEW HAMPSHIRE

Bergeron Pierre Manchester
Miller, Samuel Manchester
Straw, Amos G, Manchester
Huse, Earnest L Meriden

NEW MEXICO

Smith, Fredk C, Fort Stanton

NEW YORK

Van Winkle, H L, Albany
Pallister, S W, Brooklyn
Rankin, John F Brooklyn
Brooks N P, New Lebanon
Baughman, W H, New York
Cobb James L, New York
Davis, Thomas K, New York
Gable Malone L New York
Osincup, G S New York
Hastings T W, New York
Worcester J N New York
Almy Max A Rochester
Duffy Francis T Troy
Silliman G S, Westbury

OHIO

Wright, Fred S Bellaire
Brown H A, Cincinnati
Gillespie, William, Cincinnati
Sherry, Leroy B Cleveland
Spruney Anton B Cleveland
Wahl Harry R, Cleveland
Fenker William T Columbus
Dickinson T H, Germantown
Maxon C W, Steubenville
West James H, Tiffin
Manley, Orville T, Warren

PENNSYLVANIA

Crouse Charles C Derry
O'Reilly Charles A Philadelphia
Keely, Henry E, Philadelphia
Redmond M S Pittsburgh
Robinson G H, Uniontown

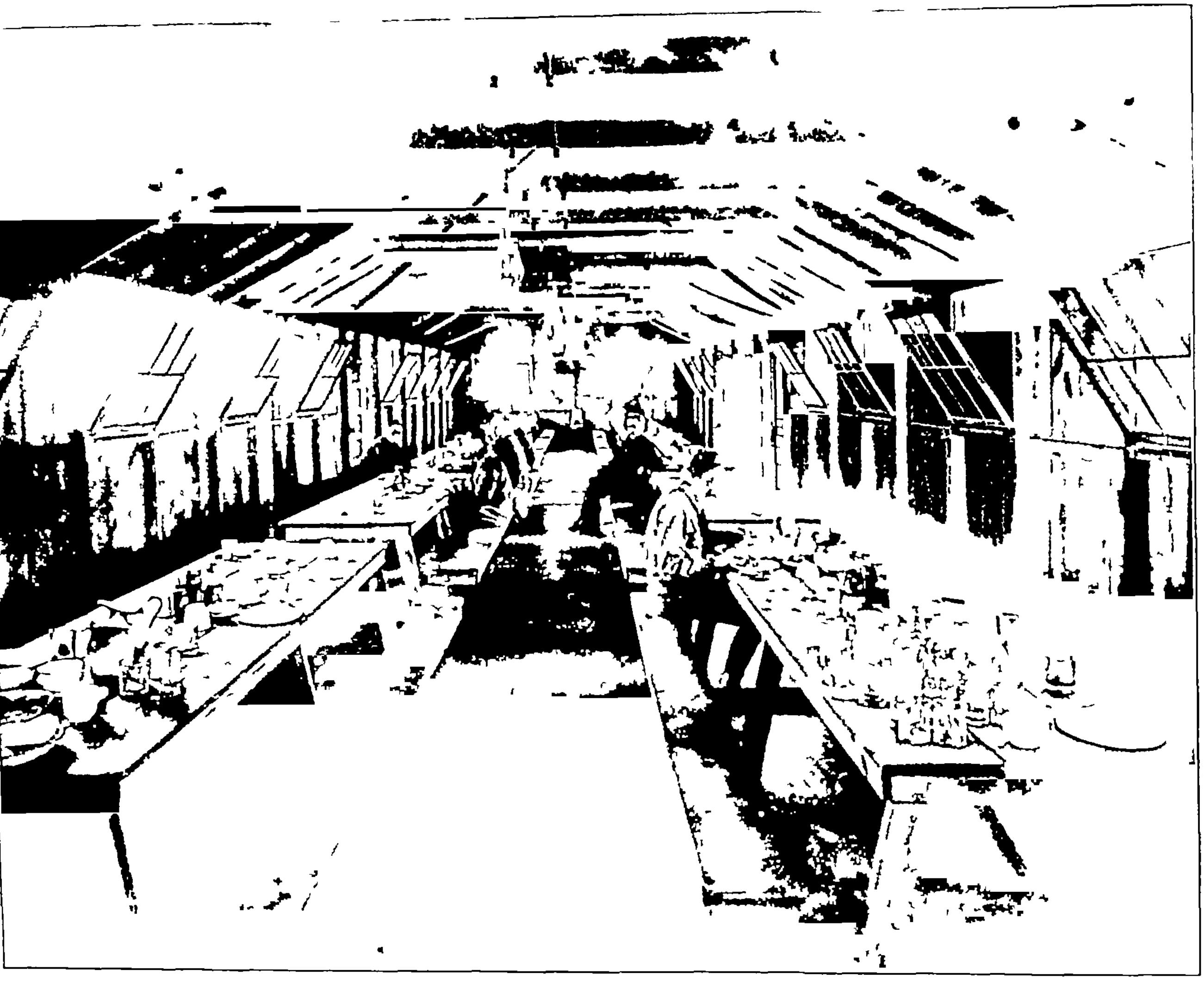
WEST VIRGINIA

Moser W C Morgantown
Lake Esly T, Muss

PHYSICAL EXAMINATION OF MEN DRAFTED UNDER THE SELECTIVE SERVICE ACT

Methods to Be Followed, and Official Instructions to Medical Examiners

The initial physical examinations of the 687 000 men registered and to be drafted under the Selective Service Law are to be made under direction of the local exemption boards by the medical members of such boards or by experienced licensed physicians in good standing appointed for that purpose In the latter case the examining physicians are to be designated by the governors of the state and are to be appointed by the local boards which they are to serve In addition to the medical member of the local board and in addition to the examining physician, if any, appointed for that board, a physician is to be appointed to make a second examination of every man who is found by the first examiner to be unfit for military service. Additional examining physicians may be appointed if the work of the local board requires—one additional if the men to be examined in any one day exceed eighty two if more than 120 are to be examined, three if the number to be examined exceeds 160, and others in like ratio Men accepted by local boards for service will be examined later by army surgeons for physical disability, but not until they arrive at the rendezvous camps



INTERIOR OF MESS HALL AT FORT BENJAMIN HARRISON

ROUTINE OF NOTIFICATION

As soon as practicable after a local board has determined in accordance with the regulations governing the matter the order in which the men within its jurisdiction who have been drafted are liable to be called for military service, it will in the order of such liability send notices to such men, each notice containing a direction to appear for physical examination at a time and place stated in the notice Normally such examinations will be made within the exemption district within which the man to be examined was registered A man absent from his normal exemption district and unable to present himself for examination there on or before the tenth day after the mailing of the notice directing him to appear, may, however on or before that day, file with his proper local board an application for an order directing his examination by another board and his local board may if it deems proper certify him to that board for examination

If any man notified by a local board to appear for physical examination shall because of sickness be unable to do so it will be necessary for him, on or before the tenth day after the mailing of the notice, to prove such inability to the satisfaction of the board, such proof to be made by affidavits, at least one of which shall be made by a licensed physician If satisfied of his inability to appear, the board may enter an order requiring its examining physician to examine the sick man wherever he may be, within the board's jurisdiction

Men who do not present themselves for examination before their normal local boards on or before the tenth day after notice, and who within that time make no applications for orders directing their examination elsewhere and no proof of absence on account of illness, are to be regarded as physically fit for military service and are to be recorded accordingly On just cause shown, however, local boards may authorize the physical examinations of such men later

ORDER OF PHYSICAL EXAMINATIONS

In making physical examinations and in basing conclusions on the results of such examinations, examining physicians and local boards are to be governed by the regulations which follow, which have been prescribed by the President for that purpose. If an examining physician or a local board is in doubt as to whether or not any man examined is physically unfit for military service, the doubt is to be resolved in favor of his physical fitness and he is to be held qualified. If in any case the examining physician finds the man examined physically unfit for military service, the board must cause him to be examined by another examining physician, designated and appointed for that purpose, who shall make his examination "without reference to or regard for the report of the first examiner."

QUALIFICATIONS

On the completion of the physical examination by one or two physicians as the case may require, the local board conducting the examination shall pass on the physical qualifications of the man examined in accordance with the following rules. If the examining physician making the original physical examination has found the man examined physically qualified for military service, the board shall hold that man to be so qualified. If the first examining physician found the man disqualified and the second examining physician has found him qualified, he shall be held to be physically qualified. If both examining physicians have found the man examined physically disqualified for military service and the board does not concur in such findings, he shall be held to be physically qualified. If both physicians have found the man examined not physically qualified for military service and the board concurs in such findings, he shall be discharged from the draft and a certificate setting forth the conditions of such discharge shall be issued to him in accordance with these regulations.

No discharge shall continue when the cause therefor no longer exists. Whenever a local board determines that such is the case, that board shall at once revoke its certificate of discharge and restore the name of the man to whom it was issued to the list of those called for service. Certificates of discharge shall require by their terms any man discharged conditionally or for a limited time to report to the local board issuing the certificate, immediately on the expiration of the time specified or whenever the conditions entitling him to a certificate of discharge cease to exist.

No man is to be physically examined unless at least one member of the local exemption board other than the medical member is present. No physician shall participate in the physical examination of any man who is related to him "by blood or marriage nearer than a second cousin", nor shall any member of a local exemption board participate in the physical examination or pass on the physical qualifications for military service who is related to him "by blood or marriage nearer than a second cousin."

Regulations Governing Physical Examinations Under the Selective Service Act of May 18, 1917

Under authority vested in him by the act of May 18, 1917, the President of the United States has prescribed the following regulations governing physical examinations under the act. These regulations prepared by the Surgeon-General of the Army have been published by the War Department. The Journal reproduces them for the information of physicians.

1. It is important, to begin with, that the examining physician should realize that there will be a certain proportion of men among those presenting themselves for examination who will endeavor to obtain exemption by dissimulation, varying from exaggeration of an existing condition not disqualifying to downright malingering, and he should be prepared to protect the government and himself against such attempts at deception.

2. The physical examination should take place in a large, well-lighted room. The person examined is to be stripped. The examining physician should proceed in substantially the following order, viz.:

(*a*) Observe the general condition of the skin, scalp, and cranium, ears, eyes, nose, mouth, face, neck, and chest. Take weight, height, and chest measurements. Accepted measurements are as follows, all chest measurements to be taken on a level just above the *nipple*:

Height		Weight (Pounds)	Chest Measurement	
Feet	Inches		At Expiration (Inches)	Mobility (Inches)
5 1/12	61	118	31	2
5 2/12	62	120	31	2
5 3/12	63	124	31	2
5 4/12	64	128	32	2
5 5/12	65	130	32	2
5 6/12	66	132	32½	2
5 7/12	67	134	33	2
5 8/12	68	141	33¼	2½
5 9/12	69	148	33½	2½
5 10/12	70	155	34	2½
5 11/12	71	162	34¼	2½
6	72	169	34¾	3
6 1/12	73	176	35¼	3
6 2/12	74	183	36¼	3
6 3/12	75	190	36¾	3¼
6 4/12	76	197	37¼	3½
6 5/12	77	204	37½	3¾
6 6/12	78	211	38¼	4

The following variations below the standard given in the table are permissible, when the applicant is *active, has firm muscles, and is evidently vigorous and healthy*:

Height, Inches	Chest at Expiration, Inches	Weight, Pounds
61 and under 64	1	8
64 and under 68	2	10
68 and under 69	2	12
69 and under 70	2	15
70 and under 73	2	20
73 and upward	2	24

To be acceptable, men below 64 inches in height must be of good physique, well developed, and muscular.

Variations in weight above the standard are not disqualifying, unless sufficient to constitute obesity. Unless exceptionally well proportioned, men above 6 feet 6 inches in height should be rejected.

(*b*) The arms being extended above the head, backs of hands together, the applicant is required to cough vigorously; any form of rupture may now be discovered by the hand and eye, but still better by the index finger passed up to the external ring.

(*c*) The arms remaining extended above the head, the applicant is required to take a long step forward with the right foot and bend the right knee; the genital organs are now conveniently exposed and varicocele and other defects in the scrotum may be recognized.

(*d*) Arms down and the man required to separate the buttocks with his hands, at the same time bending forward; this exposes the anus.

(*e*) Examine heart and lungs; rate of pulse and respiration.

(*f*) Upper extremities. Make sure that all joints are free and supple, from the phalanges to the shoulder.

(*g*) Lower extremities. The person under examination is required to leap directly up, striking the buttocks with the heels, to hop the length of the room on the ball of first one foot and then the other, to make a standing jump as far as possible and repeat it several times, to run the length of the room in double-time several times; after which his heart and lungs are reexamined.

(*h*) *Mental.*—The mental examination should be such as to develop whether or not the man examined is possessed of normal, sound understanding.

(*i*) *Vision.*—To determine the acuity of vision, without glasses, place the person under examination with back to window at a distance of 20 feet from the test types. Examine each eye separately, without glasses, covering the other eye with a card (not with the hand). The applicant is directed to read the test types from the top of the chart down as far as he can see, and his acuity of vision recorded for each eye, with the distance of 20 feet as the numerator of a fraction, and the size of the type of the lowest line he can read correctly as the denominator. If he reads the 20-feet type correctly, his vision is normal and recorded 20/20; if he does not read below the 30-feet type, the vision is imperfect and recorded 20/30; if he reads the 15-feet type, the vision is unusually acute and recorded 20/15, etc.

(*j*) In accordance with these conclusions, the minimum visual requirements are as follows: 20/40 for the better eye, and 20/100 for the poorer eye, provided that no organic disease exists in either eye.

(*k*) *Hearing.*—To determine the acuity of hearing, place the applicant facing away from an assistant who is 20 feet distant and direct him to repeat promptly the words spoken by the assistant If he can not hear the words at 20 feet, the assistant should approach foot by foot, using the same voice, until the words are repeated correctly Examine each ear separately closing the other ear by pressing the tragus firmly against the meatus The examiner whose hearing should be normal, faces in the same direction as the candidate and closes one of his own ears in the same way as a control The assistant should use a low conversational voice (not a whisper), just plainly audible to the examiner, and should use numerals names of places or other words or sentences until the condition of the applicant's hearing is evident The acuity of hearing is expressed in a fraction the numerator of which is the distance in feet at which the words are heard by the candidate and the denominator the distance in feet at which the words are heard by the normal ear, thus 20/20 records normal hearing 10/20 imperfect hearing, etc If any doubt should exist as to the truthfulness of the answers given, a watch should be used, care being taken that the individual does not know the distance from the ear at which it is being held the watch used should be one whose ticking strength has been tested by trial on a normal ear The hearing with both ears open should not be below 10/20

3 The following defects are causes for rejection

Mental—Lack of normal understanding

Skin—Chronic, contagious, and parasitic diseases, when severe and extensive, chronic ulcers, deep or extensive

Head—Abrupt depression in skull, the consequence of old fracture

Spine—Curvature, caries abscess Lateral curvature is cause for rejection when it exceeds 1 inch to either side of the line of spinous processes, especially when it throws the shoulders out of symmetry

Ears—All catarrhal and purulent forms of otitis media, perforation of tympanum

Eyes—Acuity of vision below the requirements of paragraph 2 (*j*), conjunctival affections including trachoma and entropion, strabismus diseases of the lachrymal apparatus, exophthalmos, ptosis, asthenopia nystagmus

Mouth, Nose, and Fauces—Deformities interfering with mastication or speech, chronic ulcerations, fissures or perforations of the hard palate, hypertrophy of the tonsils sufficient to interfere with respiration or phonation, loss of voice or manifest alteration of it. The person must have at least four serviceable molar teeth, two above and two below on one side and two above and two below on the other side, and so opposed as to serve the purpose of mastication A good fitting bridge or plate where not more than one-half of the teeth are involved is not disqualifying

Obstruction of nostrils, or foul discharges indicative of ozena

Simple atrophic rhinitis is readily curable Nasal polypi often mean chronic sinusitis, but are not a bar to acceptance for military service Sunken or scarred nose is often indicative of syphilis, while a red bulbous nose suggests alcoholism or indigestion

Neck—Pronounced goiter, great enlargement or ulcerations of the cervical glands

Chest—Disease of lungs and heart, especially in flat or narrow or malformed chest. In examining the heart care must be taken not to ascribe to disease the hurried, sharply accentuated action sometimes due to nervousness, fright, or embarrassment, or the irregular action caused by the excessive use of tobacco Nor should the examiner attach undue importance to the soft systolic murmurs often heard in growing athletic youths, functional and temporary in their nature

Abdomen—Chronic inflammations of the gastro-intestinal tract, including chronic diarrhea and dysentery and other diseases of the contained organs, great care should be exercised before exempting for these conditions, hernia in all situations

Anus—Hemorrhoids of a pronounced type, prolapsus, fistula and fissures

Genito-Urinary Organs—Syphilis when discernible by inspection and physical examination, tight urethral stricture, undescended testicle, chronic orchitis, marked hydrocele, chronic disease of the bladder and kidneys Varicocele does not constitute a cause for rejection unless it is so large as to interfere with locomotion, it frequently occurs among the most robust men and often without their being aware of its existence. Gonorrhea, acute and chronic, is not disqualifying, but individuals so affected should be advised immediately to secure appropriate medical treatment pending receipt of orders to report for duty

Affections Common to Both Extremities—Chronic rheumatism and diseases of the joints of disabling type, irreducible dislocation or false joints, old dislocations if attended with impairment of motion or distortion of the joint, severe sprains, chronic synovitis, badly united fractures, caries, necrosis, atrophy or paralysis, extensive or adherent scars, permanent contraction of muscles

Hands—Webbed fingers, permanent flexion, extension or loss of motion of one or more fingers, loss or serious mutilation of either thumb, total loss of index finger of the right hand, total loss of any two fingers of the same hand, or loss of the second and third phalanges of all the fingers of either hand

Lower Extremities—Pronounced varicose veins, especially when attended with edema or marks of ulceration, pronounced knock-knees club feet, flat feet, webbed toes, bunions, overriding or marked displacement or deformity of any of the toes hammertoes

The shin bone, if rough, nodulated, and tender, suggests syphilis

A broad, flat sole is common in laboring classes, particularly among negroes, and is in no way disabling In the flat foot which renders a man unfit for service the arch is so far gone that the entire border rests upon the ground, with the inner ankle lowered and very prominent and the foot apparently pushed outward Flat feet are not infrequently the result of tuberculous process

4 Any of the physical deficiencies mentioned above must be present in such degree as to clearly and unmistakably disqualify the man for military service before he can be found to be physically deficient and not physically qualified for military service

5 Temporary effects of acute disease or of an injury are not to be regarded as justifying a finding that the person so affected is physically deficient and not physically qualified for military service, but may be regarded as justifying a reasonable delay in completing the physical examination in order that an opportunity for recovery may be afforded

6 Upon the recommendation of the Provost Marshal General, medical officers will be directed, from time to time, to visit local boards for the purpose of observing the manner in which physical examinations are being conducted and conclusions based thereon Such medical officers will be authorized to reexamine men whom the local boards have found to be physically deficient and not physically qualified for military service, and will be required to make a report of each such reexamination

7 These regulations may be modified at any time by the President of the United States

Form No 14, P M G O
Prepared by the Surgeon General of the Army

PHYSICAL EXAMINATION

(Surname) (Christian name)
Serial No

STATEMENT OF PERSON EXAMINED

Have you found that your health and habits in any way interfere with your success in civil life? If so, give details

Do you consider that you are now sound and well? If not state details

Have you ever been under treatment in a hospital or asylum? If so for what ailment?

I certify that the foregoing questions and my answers thereto have been read over to me that I fully understand the questions and that my answers thereto are correctly recorded and true in all respects

I further certify that I have been fully informed and know that *making or being a party to making* any false statement as to my fitness for military service renders me liable to punishment by imprisonment

(Signature of person examined)

M D,
Examining Physician

Place,
Date

PHYSICAL EXAMINATION BY EXAMINING PHYSICIAN OF LOCAL BOARD

(Person under examination stripped)

Weight lbs height inches.
Girth of chest (at nipples) At expiration inches
At inspiration, inches.
General examination (head chest, abdomen, extremities)
Nose and throat
Heart
Genito-urinary organs (urine will be examined in suspicious cases)
Hernia

Hemorrhoids
Flat foot or other deformities of feet
Eyes
Vision—Right eye, , left eye,
Ears
Hearing—Right ear, , left ear,
Teeth

		Right								Left							
Missing Teeth	Upper,	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
	Lower,	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8

(Strike out those that are missing)

Remarks

I certify that I have carefully examined the person named on the first page hereof and have carefully recorded the results of the examination, and that it is my judgment and belief that he is physically qualified for military service *physically deficient and not physically qualified for military service by reason of

M D,
Examining Physician

Place,
Date,

*Strike out clause not applicable

FINDING OF LOCAL BOARD

Place,
Date, , 191

The Local Board finds the person named on the first page hereof *physically qualified for military service *physically deficient and not physically qualified for military service by reason of

Clerk, Local Board

Executive Officer, Local Board

*Strike out clause not applicable

PHYSICAL EXAMINATION AT PLACE OF MOBILIZATION

(Person under examination stripped)

Weight, lbs, height, inches
Girth of chest (at nipples) At expiration, inches
At inspiration, inches
General examination (head, chest, abdomen, extremities)
Nose and throat
Heart
Genito urinary organs (urine will be examined in suspicious cases)
Hernia
Hemorrhoids
Flat foot or other deformities of feet
Wassermann reaction
Eyes
Vision—Right eye, , left eye,
Ears
Hearing—Right ear, , left ear,
Teeth

		Right								Left							
Missing Teeth	Upper,	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
	Lower,	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8

(Strike out those that are missing)

Remarks

I certify that I have carefully examined the person named on the first page hereof and have carefully recorded the results of the examination, and that it is my judgment and belief that he is physically qualified for military service *physically deficient and not physically qualified for military service by reason of

Place,
Date,

*Strike out clause not applicable

INSTRUCTIONS

1 The name of the person examined and the serial (red ink) number of his registration card will be entered in the spaces for that purpose on page 1 exactly as they appear on his registration card

2 The questions under the heading "Statement of Person Examined" will be asked by the examining physician and the answers recorded by him before the person to be examined has been stripped Any answer indicating a possible disqualification will be followed up by searching inquiry and examination and the result noted in the examining physician's report.

3 The physical examination will conform strictly to the requirements of this form and all prescribed regulations and instructions governing physical examinations under the *Selective Service Act of May 18, 1917*

4 Deviations from normal, though not cause for finding the person examined physically deficient and not physically qualified for military service, will be noted under the proper headings

5 The space under the Remarks will be used for continuation of an answer if the allotted space is insufficient, and for any further statement that the examining physician may desire to make.

6 In each case in which, after examination by one examining physician, a reexamination by another is required by regulations, an independent report of the reexamination will be made on this form, and the word "Reexamination" will be entered in red ink under the words "Serial Number" on the first page of the report of the reexamination After completion of the reexamination the report thereof will be permanently attached to the report of the original examination

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest, such as relate to society activities, new hospitals, education, public health, etc)

CONNECTICUT

Personal—Dr Charles J. Bartlett, New Haven, who recently resigned as professor of pathology in Yale University, has been appointed director of the state laboratory, succeeding Prof H W Conn, deceased Dr Bartlett will also continue practice——Dr Seldom B Overlock, Pomfret, has been elected a member of the state board of medical examiners to succeed Dr John B McCook, Hartford——Prof Charles E A Winslow, of Yale Medical School, has gone to Russia as a member of the commission headed by Dr Frank Billings, Chicago, which is to make a survey of sanitary and health problems

IDAHO

Unit Begins Work—Sixty-four members of the new First Idaho Field Hospital Company began their work at the Boise Barracks, July 3 The company is officered by Major Berton O Clark, Emmett, Capt. Theodore E Schwarz, Castleford, and Lieuts Crispin Wright, Fruitland, and Chester A. Leigh, Twin Falls

State Society Meeting—The annual meeting of the Idaho State Medical Association was held in Sandpoint, under the presidency of Dr Charles S Moody, Hope, and the following officers were elected president, Dr William F Smith, Boise, vice president, Dr Charles P Stackhouse, Sandpoint, secretary-treasurer, Dr Edward E Maxey, Boise, and trustees of the state journal, Drs John N Alley, Lapwai, and William F Howard, Pocatello At this meeting the committee of Idaho physicians for medical preparedness and defense merged itself into the state committee for national safety Dr Warner H Carithers, Moscow, was chairman of the committee.

ILLINOIS

New Organization Authorized—The surgeon-general has been instructed to recruit two additional field hospitals and four ambulance companies before July 25, that the division sanitary organization may be complete

Health Insurance Bill.—Governor Lowden signed a bill appropriating $20,000 for investigation, by the health insurance commissioner, of sickness and death claims of families not covered by the workmen's compensation act

Personal.—Dr Sidney D Wilgus, Rockford, has declined the position offered him as superintendent of the Chicago State Hospital——Dr H Douglas Singer, Hospital, has been appointed alienist to the department of public health

Chicago

New Dean of Medical College—Dr Daniel A. K Steele, after thirty-five years of continuous service in an offical capacity in the College of Medicine, University of Illinois, resigned, July 1, as senior dean, professor of surgery and clinical surgery and head of the surgical department Dr Albert C Eycleshymer, professor of anatomy in the institution, has been elected dean of the institution

Personal.—Dr Charles Adams has returned after a stay of several months in the Hawaiian Islands——Dr Herman M Adler, Boston, has been appointed criminologist to the state department of public welfare——Capt James J McKinley has been commissioned major, and assigned to command of Field Hospital No 4, M C., Ill N G——Capt Frederick O Frederickson has been commissioned major, and assigned to command of Field Hospital No 3——Drs Maximilian Herzog and Arthur I Kendall have gone to New York to study the pneumonia serum, which is said to have been employed successfully in New York.

MARYLAND

New Obstetric Clinic—A central outdoor obstetric clinic is to be established on West Lombard Street in Baltimore by the University of Maryland School of Medicine

Changes in Baltimore and Ohio Staff—Dr Edward V Milholland, Baltimore, has been appointed chief medical examiner for the Baltimore and Ohio system, succeeding

Dr Joseph F Tearney, who has retired on account of ill health——Dr Royal D Sykes has succeeded Dr Milholland as assistant chief medical examiner

University Hospital Unit Organized at Baltimore—The University Hospital Unit, comprising surgeons, physicians and nurses of the university Maryland General and Mercy hospitals has been completed and it is expected that within two weeks the unit will be off to the front The physicians and surgeons comprising this unit are director major, Archibald C. Harrison adjutant Capt Arthur M Shipley, quartermaster, Capt William K White, registrar, First Lieut Edward A Looper, all of Baltimore Surgical staff Major Frank Martin Drs Compton Riely, Herbert H Haynes, Clarksburg, W Va, Hugh W Brent Daniel C. Patterson, Bridgeport, Conn, Chadbourne A Andrews, Tampa Fla, Eugene H Hayward Baltimore, Edward W Johnson, New York, and Thomas K Galvin Baltimore, all with the rank of first lieutenant Medical staff, Capt Cary B Gamble Drs J Burr Piggott, Corbin Street, Washington, D C, Harry M Stein Erwin E Mayer, all with the rank of first lieutenant Laboratory staff, Drs John Evans and D C. Wharton Smith

MASSACHUSETTS

Convalescent Hospital Donated—Mr and Mrs James J Storrow have donated the use of their summer home at Lincoln to the government, to be known as the Lincoln Convalescent Hospital The staff will be made up of women physicians, including 4 administrative officers 13 surgeons, 21 physicians 13 specialists, 3 dentists, 64 graduate nurses and 36 surgical dressing nurses

Personal—Dr Elliott P Joslin, Boston has been elected as assistant professor in Hartford Medical School——Dr Leverett D Bristol Boston, has been appointed state health commissioner of Maine——Dr Horace D Arnold, Boston has been elected chairman of the Council on Medical Education of the American Medical Association succeeding Dr Arthur Dean Bevan, Chicago——A jury is said to have awarded $8 000 damages to James W Ray in the suit brought for the loss of an eye, against Dr John Morgan Boston——Dr John A Barry, Charlestown, fell from a second story window while attempting to unfurl a flag, fracturing both wrists and dislocating his right elbow——Dr William H Coon has been appointed health officer of Kansas City, Mo——Dr William C. R. Hurley Boston has been appointed resident surgeon of the East Boston Relief Station, succeeding Dr Joseph J Hagerty, Norwood who has become visiting surgeon at the Carney Hospital——Dr Albert F Lowell Gardner has been appointed associate medical examiner (coroner) of Worcester County

MICHIGAN

New Hospital.—The Cleveland-Cliffs Iron Company has announced that it will establish a hospital in Ishpeming The new building will be three stories in height, brick and fireproof, and will accommodate more than fifty patients

Personal.—Dr Eugene Smith Detroit, has resigned as first aid surgeon of the police department.——Lieut-Col Angus McLean Detroit, director of the Harper Hospital Unit No 17, has resigned as president of the Detroit Board of Health——Dr Roy A. Barlow, Ann Arbor, has been appointed associate otolaryngologist to the Mayo Clinic, Rochester, Minn——Dr Walter I Lillie Flint has resigned from the Flint Ambulance Corps and has accepted a position as ophthalmologist at Rochester, Minn——Dr James W Inches, St. Clair, has been reappointed health officer of Detroit.——Dr Slocomb R Edwards, eye and throat specialist on the medical staff of the Calumet and Hecla Hospital, Calumet, has resigned and will practice in Grand Rapids

Courses in War Pathology and Bacteriology—In order to meet the demand for instruction in pathology and bacteriology of infections and diseases peculiar to modern warfare the University of Michigan has begun special courses in which the following subjects are taken up pathology of war infections and diseases in general, by Prof Aldred S Warthin and Asst. Prof Carl V Weller, including the pathology of camp and trench infections, hospital infections, trauma, repair and military operations, bacteriology of camp and trench infections, by Asst. Prof Paul H De Kruif, including the preparation and application of vaccines, serum reaction, use and diagnosis, and control of vaccination, and the study of organisms important in wound and camp infections The laboratory course will be supplemented by lectures and discussions

MONTANA

Personal—Dr John T Foley, Lewistown, has been elected chairman of the medical and civil committee of the local chapter of the Red Cross

Research Association Organized—A research association has been organized in Bozeman by Drs James F Blair, Clyde W Jump and Roy E Seitz

Hospital Items—More than $100,000 has been secured for the Deaconess Hospital, Billings, by a campaign, which ended July 4——Construction work has been started on the new hospital, which is being erected in Billings by the Sisters of Mercy The building will be 200 by 100 feet, five stories in height and will accommodate 176 patients——The ceremonies, attending the breaking of the ground for the second unit for the new Butte Deaconess Hospital, were held June 7 This unit will be the main surgical unit of the hospital Funds for the institution now amount to $76,000——The Bozeman Deaconess Hospital began its seventh year of work, July 1 The building is much crowded and a new building is greatly needed——The board of directors of the Havre Deaconess Hospital has decided to change the name to the Kennedy Deaconess Hospital of Havre, in memory of Mead Kennedy, who donated the site for the institution A new building is to be erected at a cost of $54 000——The new Northern Pacific Hospital, at Missoula, will be ready for occupancy by August 1

NEW JERSEY

Women Appointed Managers of State Hospital—Under the law passed at the last session of the legislature, Mrs H Crittendon Harris Glen Ridge, and Mrs Seymour Cromwell, Mendham, have been appointed by the governor, members of the board of managers of the Morris Plains State Hospital

New State Board Officers—At the annual meeting of the state board of health in Trenton July 3, Dr William H Chew, Salem was reelected president, and Dr J Oliver McDonald Trenton, was elected vice president Dr Charles B Lee Camden, successor of Dr Edward A Ayers, Branchville was present with the board for the first time since his appointment.

Personal—Dr Charles S Pancoast Camden, will leave early next month to take charge of Field Hospital No 3 on the French front——A dinner was given at Newark, June 2, in honor of Dr Britton D Evans, medical director of the Morris Plain State Hospital, to celebrate the completion of a term of service of a quarter of a century About 250 guests were present

Medical Inspection and School Hygiene—The third annual session of the New Jersey State Association of Medical Inspection and School Hygiene was held at Asbury Park, May 26, and the following officers were elected president, Dr Waldo U Kurtz Asbury Park, vice president, Dr Eugene H Goldberg Kearny, secretary, Dr Ferdinand G Angeny, Avon, and treasurer, Dr Henry H Brinkerhoff, Jersey City

State Society Meeting—The one hundred and fifty-first annual meeting of the Medical Society of New Jersey was held in Atlantic City, June 11 to 13, under the presidency of Dr Philip Marvel, Atlantic City The following officers were elected president, Dr William G Schauffler, Lakewood, vice president, Drs Thomas W Harvey, Orange, Gordon K Dickinson, Jersey City, and Philander A Harris, Paterson, recording secretary, Dr Thomas N Gray, East Orange (reelected), corresponding secretary, Dr Harry A Stout, Wenonah, treasurer, Dr Archibald Mercer, Newark, delegate to the American Medical Association, Dr Edward Guion Atlantic City Lakewood was selected as the next place of meeting The association unanimously adopted resolutions pledging the members of the society to sustain the government s present needs, and urging the members to purchase Liberty Bonds and to seek service in the Medical Officers Reserve Corps

NEW YORK

Valentine Mott Society Election—The twelfth annual outing of the Valentine Mott Medical Society was held in New Rochelle, June 30 Dr Frederick P Hammond was elected president, Dr Joseph E Lumbard, vice president, Dr John Remer, secretary, and Dr Michael C. O'Brien, treasurer

Aviation Relief Hospital—Construction work has been begun on the building of the Aviation Relief Hospital of the National Special Aid Society for the use of the aeronautic section of the First Battalion of the New York Naval Militia at Bay Shore, L I The society has donated the hospital and also the entire equipment

Transfer of Quarantine Deferred—The transfer of the quarantine station on Staten Island to the federal government on the payment of $1,395,275 has been postponed until more important matters have been gotten out of the way

To Rebuild Sanatorium—The rebuilding of the Sanatorium Gabriels, which was destroyed by fire a year ago, will soon begin The main building will be replaced by a fireproof structure of steel and concrete, 100 by 50 feet, five stories in height, and, in connection with this building, about een cottages will be erected The entire improvements l cost about $1,000,000

Niagara County Tuberculosis Hospital—The final plans for the Niagara County Tuberculosis Hospital have been sent to Albany for approval by the state department of health There will be an administration building and two pavilions with a capacity of ninety-two beds The estimated cost of the buildings is $100,000 The old County Hospital is to be used as an annex

Tuberculosis Hospital Managers Hold Meeting—At the annual meeting of the New York State Association of Managers and Superintendents of Local Tuberculosis Hospitals, held in Poughkeepsie, June 30, a resolution was adopted urging "in the strongest possible manner on those in charge of the medical examination of the new army that special and adequate measures be put into effect to secure such examination by those experienced in diagnosis of tuberculosis as will exclude all cases, active or latent." Dr A Clifford Mercer, Syracuse, was elected president, Dr Aden C Gates, Kingston, vice president, Dr H. St John Williams, Poughkeepsie, secretary, and Dr Robert L Bartlett, Rome, treasurer

Personal.—Dr David M Totman has been reappointed health officer of Syracuse for the fifth term, commencing July 5——Dr Ralph R. Fitch, Rochester, head physician of the Franco-American Hospital, at St. Valery-en-Caux, France, was made a Knight of the Legion of Honor, July 4——Dr John H. Pryor has been elected president of the Buffalo Association for the Relief and Control of Tuberculosis——Dr De Lancey Rochester and Dr Francis E Fronczak were elected directors of the association——Dr Harry J Bendes has been appointed first assistant physician of the J N Adam Hospital, Buffalo——Dr Francis J Lennon has been appointed city physician of Buffalo——Dr Irene Tognazzini, house physician of the Syracuse Hospital for Women and Children has resigned to accept a similar position on the staff of the Infirmary for Women and Children, New York.

Antidrug Law Goes Into Effect August 1—The New York State Health Department makes the announcement that the amendment to the state antihabit forming drug law, enacted at the last legislature, and which was to become effective, July 1, will not go into effect until August 1 The reason for the delay is an inability under the state finance law to contract in advance for the required printing to comply with the new law's provisions In the meanwhile circulars have been sent to all physicians, druggists, dentists, venterinarians and wholesale dealers and jobbers in drugs containing a copy of this law and a form for making application for registration under the law, and also a form which is to be used for filing with the state department of health a verified itemized statement of all the drugs mentioned in Section 245 of said act in possession of the recipient of the letter A duplicate of the inventory filed with the department of health is to be kept by the physician, together with other narcotic records for inspection by the proper officials A fee of $1 has to be sent with the application, and on receipt of the application an official order book is issued to the applicant bearing his name and registry number

New York City

Personal—Dr Thomas W Salmon has returned from England

Fourth of July Injuries—There was a total of ninety-three injuries due to Fourth of July celebrations treated in the hospitals of Manhattan and the Bronx as the result of accidents with firecrackers and toy pistols

Large Narcotic Seller Convicted—Dr Riley C. Hammers, who has been operating a bogus sanatorium at Tampa, Fla, for drug users, and importing heroin and other narcotics from Havana for distribution throughout the eastern part of the United States, has been sentenced by Federal Judge Hand of this city for two years and nine months in th Federal Prison and to pay a fine of $2,000 It the "dope peddlers" of the underworld here have been supplied by this physician

Public Dehydrating Kitchen—The Women's University Club, the Mayor's Committee of Women, and the Junior League have begun to can and dehydrate for the community the daily surplus of fruits and vegetables in the market The work of canning and dehydrating is being done in the school lunch kitchen under the Williamsburg Bridge The work of sorting has begun under the Erie Pier under the supervision of a committee of volunteer women workers Each worker will receive a daily work card which will be redeemable in vegetables during the winter

More Red Cross Gifts—The New York County Chapter of the American Red Cross announces the gift of several large sums for the purchase of ambulances, among the gifts being one of $7,000 from the Fruit and Produce Exchange Another gift of $7,000 was received from the Columbia Ambulance Corps and $5,000 from Hunter College for the purchase of ambulances Fully equipped ambulances have been donated by the Putnam County Women's Auxiliary, the Alexander Hamilton Institute, the Daughters of Pennsylvania in New York, the Mozart Society, and two from the New York chapter of the Daughters of the Confederacy

OREGON

Personal—Dr George Parrish has been appointed acting health officer of Portland, Dr Marius B Marcellus, who is on duty with the National Guard, retaining the title of health officer

Alumni Reunion—The fifth annual meeting of the Alumni Association of the Medical School of the University of Oregon was held in Portland, June 25-27 At the annual banquet the presidents of the literary colleges, located in the Pacific Northwest, were the guests of the association The following officers were elected president, Dr Adalbert G Bettman Portland, vice presidents, Dr James P Temiesie, Portland, James H Robnett, Albany, Lafayette O Roberts, Portland, and Mark W McKinney, Seattle, secretary, Dr Horace P Belknap, Jr, Portland, and treasurer, Dr Katherine C Manion, Portland Clinics were held at St. Vincent's and Good Samaritan hospitals

State Society Meeting—The forty-third annual meeting of
the Oregon State Medical Association 'd in Portland,
June 28-30, under the presidency of ert C Yenney,
Portland The following officers we president, Dr
Edwin E. Straw, Marshfield, vice rs James A
Best, Pendleton, -Aaron Tilzer, d Harry J
Clements, Salem, secretary, Dr Cl usker, Port-
land (reelected), and treasurer, C Manion
Po (reelected), delegate t ican Medical
, Dr Walter T Willia ncilors, Drs
y and Andrew C Sn (reelected)
selected as the mee next year

PENNSYLV

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lance Company No 3, John E Marshall Lebanon Fourth Infantry Homer E Halferty, Pittsburgh, Field Hospital No 1 Alfred F Compton Lancaster Ambulance Company No 3, Milton V Miller Lancaster, Fourth Infantry, Charles V Wadlinger, Schuylkill Eighth Infantry, Benjamin F White Jr, McCain, Sixteenth Infantry, Albert A Wagner, Pittsburgh, Ambulance Company No 4, John C Kerr, Pittsburgh, Field Hospital No 4, Sloan A Brown Pittsburgh, Ambulance Company No 4, Edward W Douglas, Fayette Field Hospital No 4, Robert C Hibbs Pittsburgh Field Hospital No 4, Harry F Baumann Pittsburgh Field Hospital No 1, and George G Shoemaker Pittsburgh First Field Artillery ——William H Clewell Summithill, has resigned from the medical corps——Lieut Charles B Starr has been relieved from duty with the Fourth Infantry and assigned to duty with Ambulance Company No 3

Philadelphia

Government Approves Antinarcotic Bill—The Antinarcotic bill is now a law the governor having approved the measure on July 10 Social workers health officials physicians and prominent business men, all have labored for the passage of this act for more than two years and feel that they have one of the best legal weapons against the control of the drug evil

All Passed—The State Dental Board of Examiners announced on July 11 that the 250 applicants who took the examinations in Philadelphia and Pittsburgh during the month of June had all passed successfully The next examination will be held in Philadelphia and Pittsburgh on December 5 6 and 7

Personal.—Dr George Woodward has been elected president of the Philadelphia Art Alliance——Dr Marx S Wiesen was shot and seriously wounded by a burglar who entered his home on the morning of July 12.——Dr J Milton Griscom has been appointed attending surgeon to the Wills Eye Hospital to succeed Dr Samuel D Risley Dr Risley, who has served on the staff of the hospital for twenty-seven years, was made consulting surgeon

Changes in Medical Corps—Dr Charles J Watson has been commissioned first lieutenant Medical Corps, and assigned to Field Hospital No 2——Dr William N Parkinson has been commissioned first lieutenant and assigned to Field Hospital No 3——Major Frederick O Waage has resigned and his resignation was accepted June 20—Major George S Crampton has been relieved of assignment to duty with the administration staff and assigned as director, Field Hospital, Sanitary Train

Naval Unit Formed—The second medical naval unit to be formed in this city has been completed It is composed of the staff of St Agnes Hospital as follows Dr John A McGlinn, lieutenant-commander chief of the surgical division, Dr Francis J Dever lieutenant commander, chief of the medical division Lieut Benjamin D Parish M D, laryngologist and otologist Lieut Eugene A Case, M D., pathologist, Lieut Gilbert M Newburger M D., roentgenologist Lieut Joseph Hart Toland staff surgeon and Lieut Russell S Boles, M D., staff physician

CANADA

Investigating Hospital Methods in Toronto—A committee of the Third Zone Hospital of the United States in connection with the American Red Cross has been in Toronto, studying the work of the Canadian Military Hospitals Commission which includes the convalescent and reconstruction hospitals The committee consists of Drs Sigismund S Goldwater New York, Robert W Lovett, Boston, and Charles H. Frazier, Philadelphia, and Mr J J Webster, secretary of the committee

Academy for United Medical Service—The Academy of Medicine of Toronto has adopted a resolution calling for one united medical service in Canada to take the place of the present arrangements of a Canadian Army Medical Corps and a Canadian Hospitals Commission The academy urges that medical care of all soldiers be placed directly under a surgeon-general to be known as Surgeon-General of Canada, who should be directly responsible to the minister of militia, who should have a seat in the militia council He will perform the duties of director of medical services, invalids, and be chief medical officer of the hospitals commission and of its executive. The academy recommended Surg-Gen John Taylor Fotheringham, C.M G, Toronto, recently returned from overseas, for this position

Personal—Dr Norman T MacLaurin, Toronto, is going overseas as medical officer with a detachment of Forty-Eighth Highlanders, Toronto——Major Alfred K Haywood, formerly assistant superintendent of the Toronto General Hospital, has returned to Canada He has been on active service since August, 1914, and returns to Canada to accept an appointment as superintendent of the Montreal General Hospital——Dr Maurice M Seymour, commissioner of public health for Saskatchewan has been visiting in eastern Canada ——Dr William M Hart, Regina, Sask, will return to Canada at an early date to take charge of the sanatorium at Fort Qu'Appelle, Sask——Col Charles Alfred Hodgetts, medical officer of the Canadian Conservation Commission, Ottawa, who has been doing splendid work for the Red Cross in England and France since the outbreak of war, has been made a Companion of the Order of St Michael and St. George——Lieut-Col Alexander J Mackenzie Toronto, was placed in command of Princess Patricia's Red Cross Hospital, London England June 8 Dr Mackenzie went overseas nearly three years ago as medical officer of a Toronto Highland Battalion of the first contingent

GENERAL

Army Medical Depot Opened—A medical supply depot for the departments of the East and Northeast of the United States Army has been opened in Philadelphia at 1210-12 Arch Street The depot is in charge of Major Carroll D Buck of the Medical Corps

Sioux Valley Physicians Elect Officers—At the annual meeting of the Sioux Valley Medical Association held in Sioux Falls June 26 and 27, the following officers were elected president, Dr Walter R Brock, Sheldon, Iowa, vice presidents Drs Alfred E Spalding Luverne, Minn and John E Summers Omaha, secretary, Dr George S Browning, Sioux City Iowa (reelected), and treasurer, Dr Nelius J Nessa Sioux Falls, S D

Meeting of Eye and Ear Men—At the annual meeting of the Pacific Coast Oto Ophthalmic Society held in Spokane Wash June 18 and 19 Salt Lake City was selected as the next place of meeting and the following officers were elected president Dr Alexander R Irvine Salt Lake City, vice presidents Drs Harrington B Graham, San Francisco, and Richard W Perry, Seattle, and secretary-treasurer, Dr Robert R Hampton, Salt Lake City

Bequests and Donations—The following bequests and donations have recently been announced

Hospital of the Woman s Medical College of Philadelphia, $5 000 and American Institute of Scientific Research, New York, $5 000, by the will of Dr Anna Lukens New York

Memorial Home for Blind Philadelphia, and Library for the Blind each $500 by the will of Mrs Margaret M Moor

House of St Giles the Cripple Brooklyn, Industrial Home for the Blind Medford Sanitarium for Working Men and Women, Faith Home for Incurables each $1,500 by the will of Samuel Organ

Warning Against Swindler—A correspondent from New Rochelle N Y announces that a swindler is working the eastern states He is a man about 5 feet 10 inches in height, 45 or 50 years of age, with gray hair and mustache, gray eyes, and wears a gray suit He calls on a physician, claiming to be an uncle of a former classmate, telling the story that he has been asked by his nephew to be sure and call on the doctor and to tell him how well he is doing As he gets up to leave, the swindler states that he is stranded and asks for a dollar or so to enable him to get to the next town It is said that he has victimized four physicians in New Rochelle alone

Topics to be Discussed at the Southern Tuberculosis Conference—At the Southern Tuberculosis Conference, to be held in Chattanooga, Tenn November 9 and 10, the following topics have been suggested for discussion

Relief giving to tuberculosis cases and the relation of antituberculosis associations to relief agencies

Hospital or home care in the treatment of tuberculosis.

Rest and exercise for tuberculosis patients.

The antituberculosis association as a political campaigner

Finding the tuberculous negro

Open air schools

Tuberculosis legislation in Southern states, with special reference to district plan for control of tuberculosis

Red Cross seals

The relation of state to local associations with particular reference to finances and program.

LONDON LETTER

LONDON, June 25, 1917

The War

THE HEALTH OF MUNITION WORKERS

The Health of Munition Workers Committee has issued another report on industrial efficiency and fatigue which embodies researches by Dr H M Vernon on output in relation to work, by Capt T H Agnew of the Army Medical Corps on the health and physical condition of male munition workers, and on the health of female munition workers by Drs Janet Campbell and Lilian Wilson On the question of hours of labor, Captain Agnew found a difference between workers engaged before the war and wartime recruits to industry In the former, the factor of industrial selection had probably operated, so that those employed are in some measure physically select workmen Among the men and boys engaged since the war there was a distinct relation between the length of hours and the physical condition Thus, while 22 per cent of men working less than seventy hours a week were below the highest standard, the percentage rose to 31 in men working seventy hours and more Among the boys, the percentages for those working less than sixty hours a week and those working sixty hours and more were, respectively, 6 7 and 10 6 The chief points in the recommendations are (1) reduction of excessive hours, especially when bad transit facilities make a substantial addition to the length of the working day, (2) provision and improvement of canteens, (3) provision of adequate washing accommodation, which usually was very defective, (4) improvement of first aid equipment, and (5) insistence on hygienic qualifications of "welfare workers" The report on the women workers is more satisfactory Most of the inspectors were "agreeably surprised at their general physical condition" The witnesses, entitled to speak with authority on the health of the workers, with hardly an exception, could not point to any exact data in support of their views The investigation is obviously in a pioneer stage The committee therefore emphasizes the need for the establishment of some permanent organization for the collection of scientific data, on which alone can be based the solution of industrial problems intimately connected with the future prosperity of the nation

INFECTIOUS DISEASES IN THE PAST YEAR

In view of the existence of the war, the government report on infectious diseases in the year 1916 is of particular interest Curiously several important diseases show a decline when compared with the period before the war There were twelve cases of plague, four of typhus and 149 of variola, but no case of cholera The incidence of typhoid has steadily dropped from 0 38 per thousand in 1911 to 0 16 in 1916 On the other hand, diphtheria, puerperal fever, erysipelas and poliomyelitis have shown little variation in the six years Scarlet fever increased up to 1914 and then diminished Cerebrospinal fever among the civilian population increased from 0 01 per thousand in 1913 and 1914 to 0 07 in 1915, and fell to 0 04 in 1916 The aggregation of a large proportion of the younger population of the country in camps favored outbreaks of this disease, which then spread to civilians It is satisfactory that the energetic measures taken to cope with the disease have been successful Notification of pulmonary tuberculosis in 1912 gave a rate of 3 03 per thousand In 1916 the rate fell to 2 1 and other forms of tuberculosis showed also a decline, but less marked

THE AIR RAID AND THE HOSPITALS

The aeroplane raid on London on the morning of June 13 was attended by numerous casualties among the civil population It occurred so suddenly that the hospitals had practically no warning, such as they received in the case of the Zeppelin raids The fast aeroplanes now used can arrive over the metropolis within half an hour of their appearance on the coast At the time of the raid the garden of the London Hospital was full of convalescent patients in wheeled chairs, and on stretcher beds and couches, while several were walking about All the patients who could not walk had to be brought in by volunteers while the raid was in progress and the raiders could be seen overhead close to the hospital The balconies were also crowded with beds wheeled out on them Within an ho[illegible] the raid the hospital had treated 207 patients, of whom [illegible] ser[illegible] 100 were admitted Up to the night of June 19, forty-[illegible]ad died At St Bartholomew's Hospital, 135 victims we[illegible]ated, of whom fourteen died The students proved invaluable in carrying in the wounded from conveyances of all descriptions

MEDICAL OFFICERS KILLED AND WOUNDED

According to the latest returns, the number of medical officers killed in action since the commencement of the war is 137, fifty-eight have died from wounds and sixty-two from disease, and 707 have been wounded The total of all these figures is 964

PARIS LETTER

PARIS, June 21, 1917

Death of Dr Lucien Picqué

Dr Lucien Picque, consulting surgeon of the Army of the Orient, died recently at Rome He received his M D degree in 1876 He was appointed to the military medical service, but resigned in 1880 He then became successively chief of the surgical clinic (1884), deputy surgeon of the state asylums of the department of the Seine (1886) and surgeon of the Hopitaux de Paris (1887) During the present war he was appointed surgeon of the Army of the Orient at the time of its organization, and took an active part in the installation of the medical units that were first established at the Dardanelles and then at Saloniki A few weeks before his death he had resigned his commission with the Army of the Orient, and had been charged with a special mission in Italy It was while still engaged on this mission that he passed away

As head surgeon of the Saint Anne asylum, Picqué had an opportunity to study at close range mental diseases in their relation to surgery The results of his studies were set forth in a book entitled "Psychopathies et chirurgie" (1912) He published also a "Traite pratique d'anatomie chirurgicale et de medecine operatoire" (1913)

Death of Dr Charles Mongour

Dr Charles Mongour, agrege professor of internal pathology and medical jurisprudence at the Faculte de médecine de Bordeaux, and physician of the Hôpitaux de Bordeaux, died recently

Personal

The Academie des sciences has just chosen M Leclainche as member of the academy to fill the vacancy caused by the death of Professor Chauveau, inspector-general of the veterinary service and author of numerous works on serotherapy, gas gangrene and vaccination against certain animal diseases, etc

The War

NEW RULING AFFECTING THE APPOINTMENT OF MEDICAL OFFICERS WITH THE RELATIVE RANK OF LIEUTENANT

Justin Godart, undersecretary of state for the military medical service, has just adopted a new ruling, which enables doctors of medicine that are graduates of a French medical school, and that belong to the auxiliary service, to be appointed medical officers with the relative rank of second lieutenant However, the applications presented by such candidates must be accompanied by certificates showing that they have passed the physical examination required for active army service.

FRENCH MEDICAL UNITS IN RUSSIA

Desirous of giving evidence to its Russian allies of the friendly solidarity existing between the two countries, the French government has organized a threefold medical mission to Russia with a view to lending them aid on their different army fronts These units comprise surgical and roentgenologic services and a corps to provide for the evacuation of the wounded, etc One of these groups is destined for the armies on the Russian southern front, a second for Trebizond and a third for the Persian front One of these has already arrived safely at Petrograd, and will proceed immediately to its destination The other two will leave France shortly

AMERICAN WOMAN DECORATED WITH THE CROSS OF THE LEGION OF HONOR

Miss Grace Gassette of Chicago has just received a knight's cross of the Legion of Honor for services rendered in France throughout the war During Miss Gassette's long stay with the American ambulance corps at Neuilly she has made a specialty of dressings for the wounded

Marriages

Lieut Frank Miles Heacock Assistant Surgeon, U S Navy Mare Island Calif, to Miss Edith Faye Adams of Omaha, June 30

Lieut Edwin Percy Bugbee, Assistant Surgeon, U S Navy, Chelsea, Mass, to Miss Gertrude D Freeman of Roxbury, Boston, July 3

Lieut Lorenzo Foster Luckie M O R C, U S Army, Los Angeles to Miss Finette Turcotte, at Santa Barbara, Calif., June 18

Rolfe Clarke Norris M D, Methuen, Mass to Miss Margaret Cardigan of Northampton Mass June 19

Lieut Theodore Peters M O R C, U S Army, to Miss Gertrude Lenhardt of Norristown, Pa June 27

Edmund Roger Samuel, M D., Mount Carmel, Pa, to Miss Emily Snyder of Stroudsburg Pa, June 30

Karl Frederick Koenig, M D to Miss Mabel E Frankenfield both of Philadelphia, June 30

Edward Winslow Karcher M D., Boston, to Miss Edith Ives Quincy of New York July 3

Charles Roland, M D Reading, Pa, to Miss Pauline V Schmidt of Philadelphia June 30

Theodore David Burger M D to Miss Jessie Evelyn Neill, both of Spokane Wash., June 21

Thomas Kirby Davis, M D, to Miss Rose Vedder Mabon, both of New York June 19

Charles Erwin Pitte, M D, to Miss Ethel Julia Lyon, both of Chicago, recently

Jonas Larson M D Axtell Neb., to Miss Rose Kellar of Cloquet, Minn June 19

Ara A Sharp M D St Louis to Miss Mable Faulkner of Lafayette, Ind., June 27

Deaths

Thomas Hamilton Hay, M D., Stevens Point Wis, New York University, New York 1883, aged 56 a Fellow of the American Medical Association, a specialist in tuberculosis, for several years a member of the medical staff of the Northern Wisconsin Hospital for the Insane Winnebago and of the Milwaukee County Insane Hospital founder and for nine years superintendent of the River Pines Tuberculosis Sanatorium Stevens Point, died in Elizabethtown, N J., July 29 from heart disease

James Francis Spelman, Anaconda Mont., University of Pennsylvania, Philadelphia 1890 aged 49 a Fellow of the American Medical Association and formerly president of the Montana State Medical Association, surgeon and chief of staff to St. Anne's Hospital Anaconda and surgeon of the Butte, Anaconda & Pacific Railroad, for many years a member and chairman of the local school board, died at his home, July 1

Nicholas Cornelius Schlitz, M D, Des Moines, Iowa, Rush Medical College, 1892, aged 51, a specialist on internal medicine formerly a Fellow of the American Medical Association, a member of the Iowa State Medical Association, for nineteen years a member of the faculty of Drake University Des Moines, professor of pathology in Des Moines Dental College, died at his home, July 1, from malignant disease

John William Watson, M D, Boston, College of Physicians and Surgeons Baltimore, 1900, aged 46, a Fellow of the American Medical Association, a member of the board of instruction of Tufts Medical and Dental School, Boston, assistant medical examiner (coroner) of Suffolk County, South District died in the Deaconess Hospital, Brooklyn, June 23, nine days after an operation for appendicitis

Herbert Gordon Jones, M D., Utica, N Y, New York University New York, 1881, aged 59, formerly a Fellow of the American Medical Association, ophthalmic surgeon to the Utica Masonic Home since 1893, visiting surgeon to St Luke's Hospital, Utica since 1886, coroner of Oneida County since 1885, president of the Oneida County Medical Society, in 1905 and 1906, died at his home, about July 5

Robert F Wallace, M D., Chula Vista Calif, University of Tennesee, Nashville, 1886, aged 58, formerly a Fellow of the American Medical Association and secretary of the Shasta County Medical Society, at one time a member of the board of health of Redding, Calif, died in San Francisco, June 24 from injuries received in a streetcar accident ten days before

Charles E Beardsley, M D, Ottawa Ohio, University of Michigan, Ann Arbor, 1863, Bellevue Hospital Medical College, 1870, aged 82, a specialist on diseases of the eye, ear, nose and throat, a Fellow of the American Medical Association, surgeon of the Twenty-First Ohio Volunteer Infantry during the Civil War, died at his home, June 26, from heart disease

Quitman Holton, M D, Douglas, Ga, Emory University, Atlanta, Ga, 1902, aged 45, at one time mayor of Broxton Ga, formerly a Fellow of the American Medical Association, a member of the Medical Association of Georgia, formerly president of the Coffee County and Eleventh District medical associations, died at his home, June 30, from tuberculosis

James Henry Montgomery, M D, Erie, Pa, College of Physicians and Surgeons in the City of New York, 1884, aged 58, a Fellow of the American Medical Association, president of the Erie County Medical Society, surgeon to the Hamot Hospital Erie, from 1888 to 1892, died in a sanatorium at Mercer, Pa, June 27, from heart disease

Augustus Abraham Rosenbloom, M D, New York, Cornell University, New York, 1902, aged 37, a Fellow of the American Medical Association, assistant gynecologist to the Cornell University Medical College Dispensary, attending gynecologist to the outpatient department of Sydenham Hospital, died at his home, June 28

James Alexander Haven, M D., Brookfield Pa, Western Pennsylvania Medical College, Pittsburgh 1890, aged 59, a member of the Medical Society of the State of Pennsylvania, general manager of the Summerville Telephone Company for nineteen years, died at his home, June 28, from acute gastritis

Robert Buchanan Kennedy, M D., New York, University and Bellevue Medical College, 1908, aged 33, a member of the Medical Society of the State of New York, assistant surgeon to St Luke's Hospital, New York, captain in the Eighth Regiment of Coast Defense, died at his home, June 26

Henry Jefferson Campbell, M D., Huntingdon, W Va, Columbus, Ohio Medical College 1887, University of Louisville, Ky, 1893, formerly a Fellow of the American Medical *Association, a member of the West Virginia State Medical* Association, aged 56, died at his home, May 6, from heart disease

Bert Heald Bailey, M D, Cedar Rapids, Iowa, Rush Medical College, 1900, aged 42, one of the most prominent ornithologists of the Middle West, professor of zoology and curator of the museum of Coe College Cedar Rapids since 1900, died at his home June 22 from abscess of the spleen

Daniel Frederick Grasse, M D, Chicago, Rush Medical College 1899, aged 45, formerly a member of the Illinois State Medical Society, assistant in genito-urinary surgery in his alma mater, died in the Elgin State Hospital, July 3, from meningitis, due to an infection received in 1906

Joseph H Grable, M D., Hyde Park St Joseph, Mo, Ensworth Medical College St Joseph Mo, 1895, aged 48, for many years a practitioner of Wathena Kan, local surgeon to the St. Joseph and Grand Island Railway, for the last six years an invalid, died at his home, June 25

William M Terrell, M D., Graham, Texas, Vanderbilt Medical College, Nashville, Tenn, 1883, Atlanta Medical College 1885, aged 62, formerly a Fellow of the American Medical Association, a member of the State Medical Association of Texas, died at his home, June 23

A H Neathery, M D., Farmersville, Texas, Vanderbilt University, Nashville, Tenn, 1853, aged 83, president of the First National Bank of Farmersville for thirty years, was struck by a Santa Fe freight train at Farmersville, April 24, and instantly killed

Stewart Wilson Outwater, M D, Saranac Lake, N Y, University of Bishop's College, Montreal, 1892, aged 48, a member of the British Medical Association and Medical Society of the State of New York, died in Montreal, April 15, from radium burn

Austin Wilbur Sidney, M D., Fitchburg, Mass, Eclectic Medical College of Pennsylvania, Philadelphia, 1860, Dartmouth Medical School, Hanover, N H, 1881, aged 93, a member of the Massachusetts State Medical Society, died at his home, June 25

George Abraham Teal, M D, Kendallville, Ind, Rush Medical College, 1882, aged 60, formerly a Fellow of the American Medical Association, for several sessions enrolling clerk of the Indiana Legislature, died at his home, July 1, from angina pectoris

Phebe Rebekah Johnson, M D, Fishkill, N Y, Eclectic Medical College of the City of New York, 1880, aged 73, for many years a practitioner of New York City, died at the home of her daughter in Larchmont, N Y, July 3, from heart disease

Jacob L Berthold, M D, Perham, Minn, University of Maryland, Baltimore, 1886, aged 57, a Fellow of the American Medical Association, a member of the staff of St James' Hospital, died at his home, July 6, from carcinoma of the colon

William E Provines, M D, Albuquerque, N M, Hospital College of Medicine Louisville, 1897, a member of the New Mexico Medical Society, while fishing on the bank of a stream near Springerville, Ariz, June 24, died suddenly from heart disease

Thurston Green Packer, M D, Smyrna, N Y, Bellevue Hospital Medical College, 1881, aged 74, formerly a Fellow of the American Medical Association, for many years health officer of Smyrna, died at his home, May 28, from cerebral hemorrhage

Walter L Pursselley, M D, Springfield, Mo, Missouri Medical College, St Louis, 1897, aged 50, a member of the Missouri State Medical Association and county physician of Greene County, died at his home, June 21, from cerebral hemorrhage

George Tilghman McWhorter, Riverton, Ala (license, Colbert County, Ala, 1881), aged 68, formerly a Fellow of the American Medical Association, a member of the Medical Association of the State of Alabama, died at his home, June 29

Richard S Graves, Austin, Texas (license, Texas, Twenty-Sixth Judicial District Board, 1895), aged 73, a practitioner since 1871, for more than twenty-three years physician of Austin and Travis County, died at his home, June 24

Albert Valentine Veazie, M D, New York, Tulane University, New Orleans, 1909, aged 38, for several years surgeon on steamers of the United Fruit Company, died at the home of his father, New Orleans, June 30, from nephritis

William Victor Howland, M D, Jeffersonville, Ind, Medical Reserve University, Cleveland, Ohio, 1877, aged 70, formerly a Fellow of the American Medical Association, a veteran of the Civil War, died at his home, May 18

Frank Berry Reagor, M D, Shelbyville, Tenn, University of Tennessee, Nashville, 1891, aged 56, a Fellow of the American Medical Association, died at the home of his brother, in Shelbyville, June 29, from heart disease.

James A Loggins, M D, New York, College of Physicians and Surgeons in the City of New York, 1913, aged 33, formerly an intern in the New York Post-Graduate Hospital, died in Seattle, June 25, from miliary tuberculosis

John Eugene Garrey, M D, Aurora, Ill, Rush Medical College, 1878, aged 69, formerly a member of the Illinois State Medical Society, a member of the staff of the Aurora City Hospital, died in Telluride, Colo, June 29

James Leslie Penn, M D, Gadsden, Ala, Vanderbilt University, Nashville, Tenn, 1911, aged 31, formerly a member of the Medical Association of the State of Alabama, died at his home, May 2, from pulmonary tuberculosis

Franklin H MacFarland, M D, Philadelphia, University of Pennsylvania, Philadelphia, 1892, aged 49, a Fellow of the American Medical Association, a member of the Philadelphia Pediatric Society, died at his home, May 20

William Henry Bullis, M D, Rochester, N Y, Queen's University, Kingston, Ont, 1884, aged 59, a member of the Medical Society of the State of New York, died at his home, June 28, a year after a surgical operation.

Samuel William French, M D, Milwaukee, Wis, Harvard Medical School, 1878, aged 67, a Fellow of the American Medical Association, one of the founders of the Emergency Hospital, died at his home, June 30

Glenn Everett Miller, M D, Whiteoak, Okla, Eclectic Medical Institute, Cincinnati, 1906, aged 39, formerly a member of the Oklahoma State Medical Association, died at his home, June 13, from typhoid fever

E Christie, M D, Lloyd, Fla, Atlanta, Ga, Medical College, 1883, a member of the house of representatives from Leon County, Florida, and for many years a pharmacist of Lloyd, died at his home, June 23

Isaac Lonzo Neely, M D, Corydon, Ind, Kentucky School of Medicine, Louisville, 1882 aged 61, formerly a member of the Indiana State Medical Association, died at his home, June 24, from chronic nephritis

Archibald J Kearns, M D, Loup City, Neb, Missouri Medical College, St. Louis, 1886, aged 59, a Fellow of the American Medical Association, died at his home, June 15, from arteriosclerosis

Seba S Bedient, M D, Little Valley, N Y, University of Buffalo, N Y, 1878, aged 61, a member of the Medical Society of the State of New York, died at his home, June 21, from typhoid fever

James Partridge, M D, Alton Park, Tenn, Chattanooga, Tenn, Medical College, 1909, aged 46, formerly a member of the Tennessee State Medical Association, died at his home, June 24

Walter Penquite, M D, Chickasha, Okla, Medical College of Ohio, Cincinnati, 1889, aged 53, a Fellow of the American Medical Association, died at his home, June 5, from myocarditis

Robert C Black, M D, Gainesville, Tex, Rush Medical College, 1858, aged 80, a surgeon in the Confederate service during the Civil War, died at his home, June 23, from heart disease

Webster Eber Gray, M D, Nashville, Tenn, Meharry Medical College, Nashville, 1908, aged 40, professor of medical chemistry and botany in his alma mater, died at his home, June 23

Amory Chapin, M D, Boston, College of Physicians and Surgeons in the City of New York, 1881, who retired from practice twenty years ago, died at his home, June 25

Edgar Barzillai Sharp, M D, Berlin, N J, Hahnemann Medical College, Philadelphia, 1876, aged 62, died in his office, June 26, from angina pectoris

Charles Hubbard Howland, M D, New Haven, Conn, Yale University, New Haven, 1880, aged 66, died in his office, June 25, from heart disease

Thomas H Chambers, M D, Georgiana, Fla, Albany, N Y, Medical College, 1855, aged 85, died in a hospital in Daytona, Fla, June 22

Richard H Lewis, M D., Kinston, N C, University of Pennsylvania, Philadelphia, 1886, aged 85, died at his home, May 15, from senile debility

John James McWilliams, M D, Charter Oak, Iowa, Rush Medical College 1883, aged 56, died at his home, March 1, from paresis of the bowel

Thomas Shaw, M D, Ypsilanti, Mich, University of Michigan, Ann Arbor, 1870, aged 71, died at his home, March 19, from general paresis

Robert E Lawrence, Dayton, Ohio (license, West Virginia, years of practice, 1881, license, Ohio, 1896), aged 68, died at his home, June 16

Allan Anthony Kennedy, M D, New Orleans, La, Tulane University, New Orleans, 1906, died at his home, March 3, from pneumonia

Belfield Neud Jobe, M D, Danville, Tenn, University of Tennessee, Nashville, 1897, died suddenly at Stewart Station, Tenn, April 26

James M Tubb, M D, Bessemer, Ala, Memphis Hospital Medical College, Memphis, Tenn, 1893, aged 66, died at his home, June 20

Forest G Cosby, M D, Dixon, Ky, University of Louisville, Ky, 1894, died suddenly at his home, April 25, from heart disease

Joseph A. Phillips, M D, Rockdale, Tex, Marion-Sims Medical College, St. Louis, 1892, aged 55, died at his home, April 25

Samuel B Boyd, M D, Knoxville, Tenn, University of Pennsylvania, Philadelphia, 1865, aged 64, died at his home, June 13

Silas Hubbard, M D, Buffalo, N Y, Castleton, Vt, Medical College, 1843, aged 96, died at his home, May 18

Albert Humphreys, M D, Wooster, Ohio, Columbus, Ohio, Medical College, 1882, died at his home, June 4

L J Dorsey, Batesville, Ark (license, Arkansas, 1903), aged 76, died at his home, June 11

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

LOW'S WORM SYRUP

A Dangerous Santonin Mixture

Low's Worm Syrup is made and sold by Smith Kline & French Company, Philadelphia. The preparation, like so many of the worm syrups on the market, is of the usual dangerous santonin containing type although no hint is given even of the presence of this product nor any warning that it contains a poison. The label on the product as sold at present declares the presence of 11 per cent alcohol. The older preparation some of which is still on the druggists' shelves and is furnished when Low's Worm Syrup is called for is labelled as containing 18 per cent alcohol. In each case, "the alcohol present is essential as a solvent and preservative."

The circular that accompanies the newer product when compared with the circular around the older product is seen to exhibit certain modifications which safeguard the manufacturer from legal action more than they protect the consumer from possible poisoning. The phrase 'most safe and pleasant' of the older circular becomes simply "most pleasant" in the newer circular. Where before it was simply an impossibility for worms to remain where Low's Worm Syrup is given the public now is told that, under similar conditions, it is 'most difficult for worms to remain.' The older circular recommended it— even when there are no worms —as a most useful preparation for children "with cholera morbus, dyspepsia costiveness and general debility."

'Tape worms of 15 or more feet' have been expelled so the public is told in the new circular by Low's Worm Syrup; the older circular is a little more specific giving the measurement of the tape-worms as "15 to 35 feet in length." The older circular declares "There is nothing like it." The new circular omits this statement, whether from a sense of modesty or a fuller appreciation of the possibilities behind the federal Food and Drugs Act, we do not know.

The directions on the bottle-label both of the newer and the older preparations are:

> 'A child under 1 year old may take ½ teaspoonful 3 times a day. 2 years 1 teaspoonful 4 times a day. 3 to 5 years old 2 teaspoonfuls. 5 to 10 years 2½ teaspoonfuls. Adults 1 tablespoonful one hour before meals.
>
> Observe a mild diet.
>
> Continue its use until it acts as a purgative.
>
> For Tape Worm double the dose.'

Some of the newer specimens of Low's Worm Syrup purchased on the open market, were turned over to the Chemical Laboratory of the Association for examination. The chemists' report follows:

CHEMISTS' REPORT

Specimens of Low's Worm Syrup were examined. The preparation tested was a thick, dark brownish syrup having an odor and taste resembling Dr Hand's Worm Elixir. The presence of 11 per cent. of alcohol was declared. Further than this the trade package furnishes no information concerning the composition of the preparation. A considerable quantity of suspended matter was noted. This was of a yellowish color and, together with the therapeutic indications for the preparation, suggested the probable presence of santonin. Qualitative tests indicated the presence of santonin, alcohol, sucrose (sugar) and extractives from some emodin-bearing (laxative) drug probably senna. The lack of a noticeable bitter taste indicated the absence in more than traces of many of the common laxatives, such as aloes or colocynth. If present, their quantities must be small. The purgative salts such as Epsom salt, Rochelle salt, etc., were absent. Pomegranate and pink root or their extractives, were absent. The quantitative examination was limited to the determination of santonin. The quantity found amounted to about 0.93 gm per 100 c.c. of the preparation or about 4.2 gr per fluidounce. Each dram (teaspoonful) of the preparation, therefore, contains a little more than one-half of a grain of santonin."

Santonin is a poison. One grain has produced serious poisoning in children and two doses of one grain each have been fatal. Total blindness and death are among the results that have followed the use of the drug. Headache, dizziness and convulsions, with stupor, loss of consciousness and death represent the train of symptoms following poisonous doses of santonin. As the chemists have shown, each teaspoonful of Low's Worm Syrup contains over half a grain of santonin. The directions as quoted above recommend that a child of two years be given one teaspoonful four times a day or the equivalent to two grains of santonin a day. The directions for children from three years of age and older calls for from 2 to 2½ teaspoonfuls presumably four times a day, at least the wording of the label is so ambiguous that the mother may readily assume that that is what is meant. This means giving children from 4 to 6 grains of santonin daily!

The action of santonin, because of its excretion through the kidneys is likely to be cumulative. Sollmann, in his "Manual of Pharmacology," warns that the drug should only be given under the supervision of a physician and states that half a grain may be given for two or three doses, according to age to children of from two to five years of age "and then not repeated for at least three days." In spite of these facts, the Low's Worm Syrup circular urges mothers to "lose no time but resort at once to Low's Worm Syrup" whenever their children are troubled with such symptoms as:

> 'Pain in the joints, all gone feeling at the stomach, drowsiness, bad breath, picking at the nose, grinding of the teeth, a gnawing sensation of hunger, flashes of heat, chills or shivering, vertigo, disturbed sleep, startling dreams, want of appetite or excessive appetite, pain in the stomach or bowels, nausea, indigestion, costiveness and convulsions.'

The disregard of public safety exhibited in the exploitation of Low's Worm Syrup brings back to mind the fact that the manufacturers of this nostrum, Smith, Kline & French Co. were one of the "patent medicine' concerns that wrote to New York druggists urging them to refuse to obey the law that requires a statement of the potent ingredients of all 'patent medicines" sold in New York City either to be filed with the Department of Health or to be plainly printed on the label. The Journal in its issue of November 27, 1915, called attention to this and told of the reply that one law-abiding New York druggist sent to Smith Kline & French Co. This druggist pointed out that the fact that the company was opposed to giving the Health Department a statement of the active ingredients of its preparation was "strong presumptive evidence that the claims you make for these preparations are false."

The problem presented by such preparations as Low's Worm Syrup is simple in principle but, because of the power of entrenched wealth, difficult of application. There is no excuse in economics or morality for putting on the market as a home remedy preparations containing so dangerous a drug as santonin. So long, however, as the laws do not prohibit this the least a manufacturer with any decent regard for public health and safety can do is specifically to warn the purchasing public that the preparation contains a dangerous drug.

A Panacea.—There is a salutary draught which eliminates every infirmity of the body and establishes the health. This draught you should always have by you. Its composition is as follows: Myrrhae, Feniculi, āā ℥iij, Piperi, Anethi, āā ℥i. Crush and mix thoroughly, and then add sufficient wine to form a paste. After this, put in a clean cloth, which should be carefully sewn up. Put this in [a *mixture of*] weak wine and beer and leave to mature for twenty days, or the longer the better. Then remove the cloth and drink daily a measure of the remaining wine before dinner and before supper. If you take this potion you will never ail. Beware, however, to gather and compound the herbs in a waxing moon, for if you neglect this and the moon be on the wane, the potion will be of nought avail.—Ancient Therapeutics.

Correspondence

THE ACTION OF THE HOUSE OF DELEGATES OF THE A. M A ON THE ALCOHOL QUESTION

To the Editor —In The Journal, June 9, 1917, p 1768, the following resolution appears as emanating from the Council on Health and Public Instruction

> Whereas, It is the unanimous opinion of the Council on Health and Public Instruction of the American Medical Association that alcohol has no drug value, either as a stimulant, as a tonic or as a therapeutic agent, and that it has no food value, and
>
> Whereas, Its use as a beverage or as a therapeutic agent is detrimental rather than beneficial to the individual, therefore, be it
>
> *Resolved*, That the House of Delegates of the American Medical Association, at its Sixty Eighth Annual Session, declares it is opposed to the use of alcohol by individuals either as a medicine or as a beverage, and be it further
>
> *Resolved*, That its use in medicine is permissible only in the preparation and preservation of pharmaceutical products

I wish to register a protest against this council dealing with a matter which is outside of its sphere and which belongs to the Council on Pharmacy and Chemistry, which deals with matters therapeutic The House of Delegates did not pass these resolutions but substituted

> Whereas, We believe that the use of alcohol as a beverage is detrimental to the human economy, and
>
> Whereas, *Its use in therapeutics, as a tonic or a stimulant or as a food has no scientific basis, therefore be it*
>
> *Resolved*, That the American Medical Association opposes the use of alcohol as a beverage, and be it further
>
> *Resolved*, That the use of alcohol as a therapeutic agent should be discouraged

And defeated the following safe and sane resolution

> The Section on Pharmacology and Therapeutics instructs its delegates to the House of Delegates that it is the sense of this section that the question of the therapeutic value of alcohol which has been long in dispute remains yet undetermined, and that hasty action taken in the stress of present circumstances would not be wise, and would not reflect fully the best therapeutic and pharmacologic opinions
>
> Furthermore, while recognizing the possible need of prohibition of the use of alcohol as a measure of public safety, it would ask that the two questions be considered separately on their respective merits

I wish still more to protest the action of the House of Delegates, although I am conscious that this protest may be considered bold With the great question of "prohibition," or the social questions involved, it may be the province of this council or of the House of Delegates to deal, but there is a great difference between the action of alcohol taken when it is needed and its action taken when it is not needed My protest, moreover is based on the fact that such resolutions are hasty and do not represent careful consideration of the medical facts, and, furthermore, because I do not think that the House of Delegates has a right to pass dogmatic resolutions which differ absolutely from what thousands of members of the Association believe to be true Such resolutions put in jeopardy any medical man who may prescribe alcohol with the honest belief that it does good in certain states of disease His standing in court with this resolution presented to the jury might readily be impaired if grief-stricken friends should sue him on the ground that he had used a harmful drug It may be proper for the House of Delegates to express its belief that alcohol is abused as a medicine, but to say that its use in therapeutics as a tonic, or stimulant, or as a food has no scientific basis is not only unwise, but, in the opinion of many eminent medical men, untrue and not supported by the majority of evidence Space does not permit of quotations, but it may not be out of place to quote from the last edition of Sollmann's "Manual of Pharmacology," particularly as Dr Sollmann is an active member of the Committee on Pharmacy and Chemistry On page 547, he says of alcohol

> Its usefulness as a quickly acting stimulant can *scarcely* be doubted in the various forms of sudden circulatory collapse—syncope, exhaustion, hemorrhage, traumatic shock, snake venom, strychnin, aconite, veratrum poisoning

And he recommends a dose of approximately 1 ounce of whisky or brandy, preferably hot, repeated every ten or fifteen minutes according to effect On the same page he says

> The vasodilator effect may be useful in angina pectoris, and in chronic lesions of the heart small doses may be valuable to lessen the worries of the patient.

As to its value as a food, Sollmann says in discussing exhausting fevers

"The beneficial effects are probably mainly nutrient, due to the direct *food-value of the alcohol* [italics his], and to the stimulation of the digestion and absorption of the food The pulse becomes stronger and more regular" On page 549 he states that "if taken after exposure it prevents the tendency to congestion of internal organs," and, again, on the same page, he says "Small quantities of alcohol, taken with meals, therefore, tend to have a favorable action on digestion" Finally, Sollmann states that "in chronic conditions good results might be expected in adynamic states where the circulation or tone are defective—in the course of convalescence from fevers or exhausting illnesses"

Dr Cushny of London is the first corresponding member of the Council of Pharmacy and in his book, page 143, he says, when considering the food value of alcohol

> The final result of all these investigations is that alcohol can take the place of some of the fats in the food and leads to the same economy of protein as the ordinary non nitrogenous constituents of the dietary

On page 150, Cushny says

> *In sudden chill with tendency to fever alcohol is often of great benefit* Its efficacy would seem to be due to the relief of the congestion of the internal organs by the return of the blood to the skin

Finally, it may not be out of place to quote Dr Abraham Jacobi of New York, a recent president of the American Medical Association, who wrote in *American Medicine* for September, 1913, that after sixty years of practice spent among the sick only, and the recovering and the dying, he advocates the free administration of alcohol in grave septic cases, and cites a case of diphtheria, in a girl of 7, who was taking half a pint a day and for whom he ordered another half pint, and, again, the case of a boy of 3 years with formidable symptoms of mixed infection to whom he gave a pint of whisky daily, and he adds the significant words that he wishes his "readers to know that no amount of whisky will produce intoxication when its effect is wanted to combat sepsis" He does not attempt to explain the effects He adds, "Let somebody explain, meanwhile, take the hint"

The matter may, perhaps, be thus summed up 1 Alcohol is a powerful drug and, therefore, if used carefully, capable of doing good 2 Thousands of physicians prescribe it in illness 3 Great care should be exercised by a body of men acting as representatives of their colleagues in condemning dogmatically what many of their colleagues believe correct 4 Such action may jeopardize the reputation of a professional brother If the preamble of these resolutions is allowed to stand without protest, then, Dr Jacobi and myself, along with a host of professional brethren, may find ourselves in jail for using an agent which is "detrimental" and, therefore, a poison, and likewise be sued for civil damages as well if we prescribe alcohol

As I write this letter I am in receipt of a communication from a body interested in "prohibition" quoting the resolution of the Council on Health and Public Instruction, and asking that a letter be written to the authorities at Washington calling attention to this resolution Indeed, it is requested that I telegraph the President confirming it

I take it that the chief reason for the existence of the Association is to help its members and to exercise an influence which will aid in the growth of safe and sane judgment on all matters medical I would respectfully urge that now, of all times, is the period when medical men should help balance the community by balancing themselves, and that the resolutions already quoted are not justified Alcohol has been much abused as a drug, as have all powerful drugs, but that it has no drug value, no food value, and is detrimental when used as a therapeutic agent, I earnestly deny

Hobart Amory Hare, M D, Philadelphia

Dr Hare's letter was referred to the secretary of the Council on Health and Public Instruction who comments

Dr Hare protests against the Council on Health and Public Instruction "dealing with a matter which is outside of its sphere' The subject was not taken up by the Council on its own initiative At the Detroit session a memorial from the National W C T U was presented to the Association through the secretary (see minutes Detroit session page 5), in which the Association was asked for an expression of opinion on alcohol from a social rather than a therapeutic standpoint This communication was referred to the Reference Committee on Reports of Officers which recommended that it be referred to the Council on Health and Public Instruction (official minutes Detroit session, page 69) This recommendation was approved by the House The Council's warrant for taking up this matter is that it was instructed to do so by the House of Delegates

Dr Hare further says 'Such resolutions put in jeopardy any medical man who may prescribe alcohol with the honest belief that it does good in certain states of disease ' although he does not specify how the medical man would be put in jeopardy There is no state in which any properly trained and legally qualified physician could be put in jeopardy under the criminal law for using any remedy which in his professional judgment was indicated Perhaps Dr Hare has reference to civil suits for malpractice. In such cases it is a well established principle in law that the acts of a physician must be judged by the professional standards of knowledge and practice prevailing among physicians at the same time and place. Resolutions adopted by the American Medical Association or any other body expressing an opinion on a scientific question would not be admissible as evidence in a malpractice suit They might possibly be utilized by an attorney in an argument before a jury but would have only such value as the jury might attach to them In a civil suit for damages the extreme penalty consists in the infliction of monetary damages and costs on the defendant Even when found guilty of malpractice physicians are not imprisoned so that there is no danger of Dr Hare realizing his foreboding that "Dr Jacobi and myself along with a host of professional brethren may find ourselves in jail"

The resolutions adopted by the House of Delegates are an expression of opinion on the part of this representative body of the medical profession of the United States as to the harmfulness of alcohol especially from a social standpoint They are to be regarded as a statement of general principles rather than as a dogmatic dictatorial and infallible rule to be applied to all cases without exception They will doubtless be so considered by the majority of the members of the Association Scientific questions are not to be settled by vote On the other hand, such an organization as the American Medical Association has certain social duties and responsibilities which it must meet from time to time by summarizing the consensus of opinion of the medical profession to the best of its ability on those questions which have a sociological bearing Dr Hare need have no fear however that any physicians will suffer for using their best scientific knowledge and judgment in the treatment of their patients

Frederick R. Green
Secretary, Council on Health and Public Instruction

MILITARY SERVICE AND LIFE INSURANCE POLICIES

To the Editor —The question as to how service in the army will affect life insurance polices is worthy of the attention of doctors who offered their services

I have communicated with the companies with which I carry insurance, and give the information obtained for the enlightenment of those who have not yet investigated If contemplating joining the army or the reserve, one should at once communicate with the companies with which one is insured, in order not to invalidate one's policies through failure to comply with the requirements of the policies

The Reliance of Pittsburgh states "Your policies do not contain war clauses, so your engaging in military or naval service will in no way affect the validity of the contract."

The Prudential states, 'Your policies contain no war restrictions, therefore, service in the army will not affect the validity of the policies in any way "

The Equitable states, 'Notwithstanding the fact that your policy does not by its terms cover military or naval service in war, the society takes pleasure in advising that it has decided that no additional premium will be charged—in the service of the United States—either at home or abroad"

The New York Life states "Your policies are absolutely free of conditions as to residence, occupation, travel, habits of life and manner, time or place of death No permit or extra premium will be required for military or naval service in time of war or in time of peace"

The Provident Life & Trust Company states, 'The Board of Directors adopted the following Resolution on Fourth month 9th, 1917, 'Resolved That any existing restrictions as to occupation residence, travel or military or naval service, be and are hereby waived upon all outstanding policies which have attained their first anniversary' You are, therefore at liberty to enter either the military or naval service, without prejudice to your policy"

The Fidelity Mutual of Philadelphia states, "Your policies provide that in the event of your engaging in military or naval service in time of war, an extra premium is to be paid and permit obtained from the Company—For service abroad, or naval service, we are charging an extra premium of $30 per thousand annually"

The Missouri State Life which took over the Hartford Life states 'The extra annual premium being charged by the company for a permit to engage in military or naval service outside the continental limits of the United States amounts to $100 per $1,000 of insurance"

These replies are of course for policies taken out before war was imminent or actually declared All companies charge an extra premium for new policies taken out for the sole purpose of protection during actual participation in the war

From the statements made by the various companies it follows that (1) one should communicate with one s insurance companies at once, (2) it makes a difference what companies one is insured in, (3) most insurance companies are treating their old policy holders fairly and trying to meet them more than half way

W Scott Piper, M D., Clearfield, Pa

TRACHOMA A CIVIC AS WELL AS A MILITARY PROBLEM

To the Editor —At a meeting of the Section on Ophthalmology of the American Medical Association last June a resolution was passed requesting the government to be on the watch for cases of trachoma among voluntary and conscripted candidates for the army[1]

To exclude victims of trachoma from the ranks is no doubt desirable, but in so doing first, the army will lose many men who in short time (from three to six months) could be cured of trachoma and be made safe as far as contagion is concerned Secondly, these excluded persons return to their homes, continue to live under unhygienic conditions and cannot be kept under supervision The fact must also be borne in mind that many of these persons are employed in factories where they disseminate trachoma among their fellow workers In this connection, it may be interesting to recall two facts, first, that trachoma was introduced into Europe on a large scale by the soldiery, namely, the French and English soldiers returning from Egypt after the Napoleonic expedition, 1798-1801, and second, that it was disseminated among the civilian population by the discharged soldiers affected with eye diseases At one time there were so many trachomatous soldiers in the Belgian army that the government applied to Jungken, a celebrated ophthalmologist in Berlin, for advice. He recommended that they dismiss the trachomatous soldiers to their homes By means of this ill-advised measure trachoma soon became diffused in Belgium to an extent that has been observed in no other European state.

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[1] The following resolution was adopted by the Section on Ophthalmology but was not transmitted for the approval by the House of Delegates required before a resolution shall be issued in the name of the American Medical Association

Resolved That the Section on Ophthalmology of the American Medical Association call the attention of the surgeons general of the army and navy to the fact that conscripted men from regions infected with trachoma might be the source of a widespread epidemic of the disease and that strict measures be adopted for the prevention of such a disaster

There is, of course, no danger of such an error being made today, but at least one European country engaged in the present war—Austria—decided some time ago that the exclusion of men of military age afflicted with trachoma was inadvisable from the standpoint of helping the individuals excluded, and unnecessary from the standpoint of military prophylaxis It was found impossible to keep such excluded men under supervision and treatment, accordingly the authorities in Austria refused to accept trachoma as excluding the patient from military service, and also placed all trachomatous patients liable to military service in military institutions under the case of special physicians, until they were completely cured, after which they were sent for military service or were dismissed, according to the age at which the cure was effected The average length of treatment was four months, and about 80 per cent of the patients were cured within the period of liability to military service During the service age, the trachoma patients were given regular military training at the garrison hospital

I respectfully suggest, therefore, that instead of excluding trachoma patients from the American army, the practice initiated by Austria be followed by us

Exclusion of men of military age on account of trachoma from service is desirable only from one point of view, that of army prophylaxis Acceptance of these men followed by isolation, supervision, treatment and military training would insure civilian as well as army prophylaxis, and be a gain to the army and the community, as well

Arthur S Tenner, M D, New York

MEDICAL STUDENTS AND THE DRAFT

To the Editor —There is a question highly interesting to a considerable number of medical students who blindly followed the advice given a few months ago by the surgeon-general, namely, to stay in school, resting assured that by doing so they would be best serving their country But the time is now very near when the draft is to be put into operation and the only attention shown the medical student, which had any authority behind it, was the vague and unsatisfactory statement of the surgeon-general published in The Journal, July 7 The medical students of this and other cities want to know exactly where they stand and want to know soon

It would be most unjust if the government, which advised the men to stay in medical school, thus losing their chances of obtaining commissions, should draft them without at least giving them an opportunity of enlisting in their chosen branch of the service

Can you not secure us some prompt, *definite*, and authoritative statement?

R V Baker, Portland, Ore

IN AID OF BELGIAN PHYSICIANS

To the Editor —I have received a letter from Mr P George Du Carpe, 9, rue Saussier Leroy, Paris, at the instance of Dr Joseph A Blake in reference to the following matter

When the war is over, the doctors in Belgium and Northern France will wish to return to their offices, clinics, etc When they do so they will find everything gone, no instruments, no means of examination of patients, in other words all office fixtures and clinical opportunities, save it may be here and there, will have disappeared

There has been established a committee for aiding the refugees of the liberal professions, doctors, and others (Comite d'appui des refugies des Professions liberales) to meet this serious want The patrons include MM A Ribot, president of the council, Leon Bourgeois, minister of labor, and other prominent persons One of the vice presidents is Dr Mauclaire of the Faculty of Medicine in Paris The treasurer is M Charles Halais, 15, boulevard de Latour-Maubourg, Paris

Some of our profession certainly will desire to aid in this laudable effort to reestablish our confreres in their civil work, any such may send their gifts to the treasurer, or, if they prefer to send any such sums to me at 1729 Chestnut Street, Philadelphia, I shall be very happy indeed to forward them to the treasurer All gifts to me will be acknowledged through the columns of The Journal

W W Keen, M D,
1729 Chestnut Street, Philadelphia

THE HOME HOSPITAL UNIT

To the Editor —This age, especially in the midst of a world war, demands the greatest individual efficiency The slaughter of human lives puts man-power at its highest value Physicians cannot be made in a day The nation must preserve those now qualified and use them in such manner as will render most efficient service in maintaining its greatest asset, the life and health of its citizens It is said that with 140,000 physicians in the United States, only half that number would be acceptable for army service, even then making no provision for the care of patients at home—the man left without his physician at a time when disease runs rampant amid the turmoil of war

It becomes necessary, first, to organize the medical service at home, secondly, to systematize its work, and thirdly, to relieve the strain on the physician himself This brings to us the remedy—the home hospital unit.

1 A hospital is organized in each community, located where it will be accessible to the most people, built on the plan of modern hospitals with private rooms, wards, outpatient department, etc, one or more physicians on its staff, a graduate trained nurse in charge of the nursing with assistants which she herself can train, and managed by a board of directors (three men and two women) in the same community, the physician in charge being ex officio chairman of this board The hospital, of course, must have an ambulance

2 Certain hours are established for physicians, rounds, operating, laboratory work, etc., and likewise for the various routine duties of the nurses There are separate wards for obstetrics, diarrheal diseases of infants, typhoid fever, pneumonia, tuberculosis, nephritis, etc, with routine treatment of each when possible Certain limited hours for visitors are prescribed

3 The physician in charge no longer has to travel to see his patient, the patient himself goes where he can be best treated The physician's time is consumed in doing that which he alone as a physician is qualified to do Men can be trained to run ambulances in a day, but it takes four years to make a physician This and many years of experience are not to be whitted away in idle gossip at the bedside or by exposure in bad weather over rough roads Give him organized help, trained to nurse the sick in a house built for sick people and where remedies are at hand at a moment's notice Remove the patient from his insanitary home and surroundings, at least till he recovers, then instruct him in the origin of his illness, how to continue well, how to render his surroundings healthy, printed pamphlets can be handed him on leaving the hospital

This home hospital unit will outlive this and many wars The standards of medical schools can continue their advancement, physicians can become fewer, mercenary men can seek other channels of adventure, and the health of the nation will be provided for

Theodore E Wannamaker, Jr, M D, Cheraw, S C

Philadelphia Regulates Junk Shops—The junk shop regulation bill has been passed by both houses of the legislature and approved by Governor Brumbaugh This action is looked on as a distinct forward step toward better protection of the public health and also a further means of preventing fire and reducing crime. Under the regulations of this bill the location and operation of all junk shops will be controlled The provision and introduction of this bill had the full support of the local health department and hereafter all junk dealers will be required to obtain from the division of housing and sanitation of the department of health, a permit for the location and conduct of a shop and all junk shops must be carried on in strict compliance with the rules of the bureau of health

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed Every letter must contain the writer s name and address but these will be omitted on request

QUESTIONS ON PREVENTIVE MEDICINE AND HYGIENE

To the Editor —Kindly answer the following question that was asked in an examination held for health officer Define (1) disinfection (2) sterilization (3) immunity (4) death rate (5) morbidity rate (6) case fatality rate (7) virus (8) Schick test (9) flash (10) Mills Reincke phenomenon, (11) Hazen s theorem Please omit my name
I K C

Answer.—1 Disinfection means the destruction of the pathogenic micro organisms which cause infection 2 Sterilization means the destruction of all the lower forms of animal and vegetable life that may be in or on an object 3 Immunity is the power which living organisms possess to resist and overcome infection 4 The death rate is the ratio of the total number of deaths in a community to the population, usually figured in terms of number of deaths per thousand ten thousand or hundred thousand 5 The morbidity rate is the proportion of cases of a given disease occurring during the year per thousand ten thousand or hundred thousand of population 6 The case fatality rate is the percentage of cases of sickness which terminate fatally 7 Virus is the toxin of an infectious disease 8 The Schick test is the injection into the skin of 1/50 of a minimal lethal dose of diphtheria toxin for a 250 gram guinea-pig A positive reaction, which is the development of a reddened area with a white center at the site at which the toxin was injected into the skin means the absence of antitoxin or susceptibility of diphtheria A negative reaction means the presence of antitoxin or immunity 9 The flash method refers to that method of pasteurizing milk whereby the milk is brought up to a temperature of 178 F and chilled at once This method is no longer approved by sanitarians since it is not entirely reliable and does not give uniform results The holding method in which the milk is heated to 65 C. and kept at that temperature for from thirty to forty-five minutes, is more reliable. 10 The Mills-Reincke phenomenon relates to the marked decrease in the general death rate following filtration of the water supply It was observed in Lawrence Mass in September 1893 by Mr Hiram F Mills, and in Hamburg, Germany, in May 1893 by Dr J J Reincke The name Mills-Reincke phenomenon" was given by Sedgwick and McNutt in 1910 11 Mr Allen Hazen a sanitary engineer, said in 1904 that where one death from typhoid fever has been avoided by the use of a better water a certain number of deaths probably two or three from other causes have been avoided' Hazen s theory is a formula for a numerical expression of the comparative effect of water purification on typhoid fever mortality and total mortality It is not a precise mathematical statement.

The answers to practically all of the questions may be found in any of the modern textbooks on preventive medicine and hygiene.

DANGERS OF OPERATING THE ROENTGEN RAY

To the Editor —I should like information as to the effect of the Roentgen ray on the generative organs 1 Is the ordinary unprotected operator of the Roentgen ray exposed to sterilization? 2 Has it been used as a means of sterilization in asylums and what is the procedure? 3 Are three layers of lead foil an efficient protecting screen?

William F Shaw M D Campbell River B C

Answer.—1 It has been shown that the testicles are extremely susceptible to the Roentgen ray and to avoid sterilization they should be protected from exposure As to whether the unprotected operator is exposed to sterilization depends altogether on how much he is exposed to the Roentgen ray In the ordinary use of the Roentgen ray, under conditions that are safe in general for the operator, there is no danger of sterilization

2 The use of the Roentgen ray for sterilizing the insane or criminals has, of course, occurred to many persons, but we do not know of any practical application of it for this purpose in institutions

3 Three layers of ordinary thin lead foil are not an efficient protection against powerful Roentgen rays

Medical Education and State Boards of Registration

New York January Examination

Mr H H Horner, director, Examinations and Inspections Division, reports the written examination held at Albany, Buffalo, New York and Syracuse, Jan 29 to Feb 2, 1917 The examination covered 8 subjects and included 80 questions The percentage required to pass was 75 Of the 150 candidates examined, 116 passed, including 5 osteopaths, and 34 failed, including 1 osteopath

Mr Horner also reports that from Jan 1 to May 1, 1917, 12 candidates were licensed through reciprocity, 3 through reregistration 2 through the endorsement of credentials 1 on recommendation of the state board and 2 because of eminence and authority in the medical profession The following colleges were represented

PASSED

College	Year Grad	Total No Licensed
Yale University	(1914)	1
Northwestern University	(1911)	1
Rush Medical College	(1916)	1
University of Louisville	(1912)	2
College of Physicians and Surgeons, Baltimore	(1914)	1
Johns Hopkins University	(1913) (1914, 2) (1915)	4
University of Maryland	(1916)	2
Harvard University	(1907) (1916)	2
Tufts College	(1909)	1
University of Michigan Medical School	(1909) (1914)	2
Albany Med Coll	(1910) (1911) (1914) (1915 5) (1916 2)	10
Columbia University	(1914 3) (1915 3) (1916 4)	10
Cornell University	(1915) (1916 4)	5
Fordham University	(1913) (1914) (1915 3) (1916 7)	12
Long Island College Hospital	(1916)	4
New York Homeopathic Medical College and Flower Hospital	(1914 2) (1915 3) (1916 11)	16
New York Medical College and Hospital for Women	(1915) (1916 3)	4
Syracuse University	(1916)	1
University and Bellevue Hospital Medical College	(1914) (1915 4) (1916 2)	7
University of Buffalo	(1913) (1916 2)	3
University of Oklahoma	(1916)	1
Hahnemann Med Coll and Hosp of Philadelphia	(1916)	1
Jefferson Med Coll of Philadelphia	(1915 2) (1916)	3
Medico Chirurgical Coll of Philadelphia	(1915 2) (1916)	3
University of Pennsylvania	(1912) (1915 2)	3
Med Coll of the State of South Carolina	(1903)	1
Vanderbilt University	(1914) (1915)	2
University of Vermont	(1915)	1
Medical College of Virginia	(1914) (1916)	2
Queen s University	(1911) (1915)	2
University of Brussels	(1913)	1
National University Athens	(1911)	1
University of Turin	(1914)	1

FAILED

College	Year Grad	Total No Licensed
Leland Stanford Junior University	(1916)	1
George Washington University	(1916)	1
Howard University	(1916)	1
University of Georgia	(1916)	1
University of Maryland	(1912) (1916)	2
Boston University	(1912)	1
Tufts Medical School	(1912) (1915 2)	3
Columbia University	(1914) (1915) (1916)	3
Fordham University	(1916)	1
New York Homeopathic Medical College and Flower Hospital	(1914) (1915 2) (1916 4)	7
University and Bellevue Hospital Medical College	(1915)	1
Hahnemann Med Coll and Hosp of Phila	(1915) (1916)	2
Jefferson Medical College of Philadelphia	(1904)	1
Medico-Chirurgical Coll of Philadelphia	(1911) (1916)	2
Medical College of Virginia	(1915)	1
Queen s University	(1911) (1916)	2
University of Catania	(1912)	1
University of Naples	(1899) (1909)	2

LICENSED THROUGH RECIPROCITY

College	Year Grad	Reciprocity with
Yale University	(1913)	New Jersey
George Washington University	(1915)	Wisconsin
Cornell University	(1914)	Wisconsin
N Y Homeo Med Coll & Flower Hosp	(1913) (1916)	New Jersey
University of Cincinnati	(1915)	Ohio
Univ of Penna	(1905) New Jersey (1910) Ohio (1914)	Ohio
Medical College of Virginia	(1912) (1915)	Virginia
University of Virginia	(1912)	Virginia

Minnesota April Examination

Dr Thomas S McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the oral, practical and written examination held at Minneapolis, April 3-5, 1917 The examination covered 16 subjects and included 80 questions The percentage required to pass was 75 Eight candidates were examined, all of whom passed Nineteen candidates were licensed through reciprocity The following colleges were represented

College PASSED	Year Grad	Per Cent
Rush Medical College (1916) 82, 90, 93		
Kentucky School of Medicine	(1902)	77
University of Minnesota (1916) 89,	(1917)	88, 90
National University, Athens	(1905)	81

College LICENSED THROUGH RECIPROCITY	Year Grad	Reciprocity with
University of Colorado	(1914)	Colorado
College of Phys and Surgs, Chicago (1893) Nevada,	(1908)	Iowa
Illinois Medical College	(1903)	Illinois
Northwestern University (1911) (1914) (1915)	(1916)	Illinois
University of Illinois	(1915)	Iowa
State University of Iowa Coll of Med (1905)	(1914)	Iowa
University of Louisville	(1911)	Wyoming
Boston University	(1903)	Illinois
John A Creighton Medical College	(1916)	Nebraska
Omaha Medical College	(1896)	Nebraska
University of Nebraska	(1904)	Nebraska
N Y Homeopathic Med College and Flower Hosp	(1910)	N Dakota
University of Virginia	(1907)	Virginia
Marquette University	(1916)	Wisconsin

Book Notices

STATE SANITATION A REVIEW OF THE WORK OF THE MASSACHUSETTS STATE BOARD OF HEALTH By George Chandler Whipple, Professor of Sanitary Engineering in Harvard University and the Massachusetts Institute of Technology Volume 1 Cloth Price, $2 50 Pp 377, with illustrations Cambridge Harvard University Press, 1917

Dr Whipple's review of the work of the Massachusetts State Board of Health will be read with profit by those interested in preventive medicine Chapter 1 on the early history of public health in Massachusetts has all the fascination of a story The reader learns, with the delight of meeting an old friend, that Paul Revere, the well known "rider" of whom he read and recited in his school boy days, was the chairman of the first board of health of Boston Feb 13, 1799, the people of Boston elected a board of health, and, March 9, the board organized by electing Paul Revere as president and Mr John W Folsom as secretary Various health ordinances, either in the colony or in the town, had already been enacted, usually following some epidemic, but this was the first official health board to be organized Among the rules and regulations promulgated by this board was one forbidding the sale or having in one's possession within the city of Boston any oysters from June 1 until September 1 Dr Whipple records many other interesting incidents, such as the introduction of vaccination in 1800 by Dr Waterhouse, the construction of the first water system consisting of bored logs joined together with lead, the development of the sewerage system, the filling in of waste and submerged land, the discovery of ether as an anesthetic, and the development of city markets, of which the old Faneuil Hall Market is the best known The story of the work of Lemuel Shattuck is graphically and interestingly told, while the reading of the report of the first sanitary commission, made in 1850, is suggestive, even at the present state of sanitary development Chapters 2, 3 and 4 deal with the history, development and various forms of the state board of health Other chapters discuss the antitoxin and vaccine laboratories, protection of food and water supplies, the Lawrence Experiment Station and the water and sewage laboratories, the cost and achievements of the state board of health, and the present system of organization of the department of health of the state Chapter 13 consists of biographic sketches of various prominent men who have at various times been connected with the board

ADVICE TO WOMEN ON THE CARE OF THE HEALTH BEFORE, DURING AND AFTER CONFINEMENT With Hints on the Care of the New Born Infant and an Appendix on What to Get Ready for a Baby By Florence Stacpoole, Diplomée of the London Obstetrical Society Revised from the Fifth London Edition to Conform to American Practice by Lydia E Anderson, R N President of State Board of Nurse Examiners, University of State of New York Cloth Price, $1 25 net Pp 265 New York Funk & Wagnalls Company, 1917

This is one of the numerous books of advice to women so many of which have been published in the last few years This one is well arranged and well written, and can be safely recommended

Medicolegal

An Expert on Insanity Testifying as to Indications of Handwriting

(Raymond et al vs Flint et al (Mass), 114 N E R 811)

The Supreme Judicial Court of Massachusetts, in this suit by an administrator and others to set aside a deed, etc., made by a Mrs Dow, says that the superintendent of the Danvers State Hospital, after examining specimens of Mrs Dow's handwriting, stated that they indicated a person advanced in years, an arteriosclerotic, or senile person, "by reason of the palsied writing and tremor which is characteristic of that period of life" The court sees nothing objectionable in this evidence The opinion of an expert on insanity, although not an expert in handwriting, was admissible for the purpose of explaining Mrs Dow's mental or physical condition The peculiar characteristics of the handwriting may have been known to the witness, and it may have been the handwriting of such a person as he described

Construction of Statute with Reference to Compulsory Vaccination of Schoolchildren

(Herbert vs Demopolis School Board of Education (Ala), 73 So R 321)

The Supreme Court of Alabama, denying a rehearing, affirms an order denying a writ of mandamus to compel the reception of an unvaccinated child into the Demopolis district public school after the municipality of Demopolis had enacted an ordinance providing that "no child shall enter any of the public schools of Demopolis who has not been vaccinated" The court says that, in defining the powers, etc., conferred on municipalities, Section 1289 of the code provides "To adopt all necessary ordinances and enforce the same to prevent the introduction or spread of contagious, infectious, or pestilential diseases in the cities or towns, and to that end may provide for a system of compulsory vaccination and enforcement of the same" That statute is a particular expression of the police power of the state, and as such, in the preservation of the health of the people, there can be no real doubt of its constitutional validity, even though its effect is to commit to the municipal authorities a measure of discretion with respect to the circumstances under which the power thus delegated shall be made effective. The legislature avowed its conclusive judgment that the major end in view would be subserved by a system of compulsory vaccination, thus avoiding the application of the general doctrine illustrated in the decisions cited on the briefs for the appellant (petitioner), where the pronouncements were predicated of the absence of a legislative specification that compulsory vaccination was within the contemplation of the legislature when it wrote the general authorization under which the subordinate administrative agents sought to establish com pusory vaccination within their jurisdictions Where the proper authority has so enacted, the regulation that vaccination is a condition precedent to the attendance of children on schools in their communities is a valid exercise of the police power for the prevention of disease and the preservation of the health The right or privilege assured by the provision of the code that "every minor over the age of seven years shall be entitled to admission into, and instruction in any public school of his or her own race or color in this state" is subject to reasonable regulation, with respect to its enjoy- ment, by constituted authority on which is imposed by law of coincident dignity the obligation to guard and to preserve the health not only of schoolchildren but of all others within their jurisdictions who may be affected in consequence of the association and congregation of children in the schools of the community The authority delegated to the municipalities of the state by statute (Section 1289) is to provide a system of compulsory vaccination The power conferred is to require vaccination without regard to the will or wishes of the persons subject to the government or control of the municipalities The method whereby this power may be made effective, as a least one of the means to prevent the "introduction or spread" of smallpox is committed to the discretion, reasonably exercised, of the municipality If it be assumed to the petitioner's advantage, that the quoted provision of the ordinance was all of the regulations the municipality had sought to establish touching the subject of smallpox and vaccination to prevent its introduction or its spread in Demopolis, it could not be pronounced void because its effect was alone visited on children eligible to attend the public schools therein As a matter of classification for legislative purposes the regular congregation of numbers of children in public school buildings and on playgrounds usually provided about these schools necessarily constitutes a condition different, with respect to hygienic circumstances, effects and results, from that to be found in any other character of assemblage in a municipality These differences, justifying regulatory classification are suggested by the varying degrees of sanitary conditions prevailing in the homes of the pupils and by the circumstances of association and contact ordinarily present among pupils in such schools It is difficult to conceive of a higher obligation on municipal authorities, when sufficiently empowered, than to preserve and to conserve the health of pupils in their schools.

Taking Injured Seaman to Other than Marine Surgeon

(The C S Holmes (U S) 237 F d R 785)

The United States Circuit Court of Appeals, Ninth Circuit reverses a decree so far as it denied the libelant one Fondahn damages for an alleged failure to furnish him proper medical and surgical treatment The court says that at about 6 o'clock one afternoon, when the schooner *C S Holmes* was about 10 miles off Cape Flattery on her way to sea Fondahn a sailor on the schooner, received a compound fracture of the right arm The injury was very serious the periosteum was torn, and bones protruded from a ragged wound The arm was dressed by the master and sailors and the master put the vessel about and sailed back toward Port Angeles, and with the aid of a tug, which was procured on the way, arrived at Port Angeles at about 3 o clock the next morning Thereupon sail was lowered and all hands went to bed Early in the morning the master inquired for a physician, and was referred to one by whom Fondahn was taken in charge, being taken to a hospital owned by the physician About 8 o clock that morning the arm was dressed Seven days later Fondahn went to the Port Townsend Marine Hospital While in change of the physician at Port Angeles the arm began to fester, and it later developed that the bones had not been in apposition and that they did not unite At the marine hospital an operation was performed, and Lane plates were applied but no cure was affected The evidence was that a further operation would be necessary and that a cure was doubtful, if not impossible It was Fondahn's contention that the master was negligent in taking him to a physician at Port Angeles and in not taking him to the one at the marine hospital at Port Townsend This was opposed by the contention that the master's duty was to take him to the nearest point where medical attention could be obtained, and that by so doing he discharged the vessel from further obligation, which seems to have been the opinion of the district court. But the court of appeals is unable to agree with the court below that the master of the *C S Holmes* was guilty of no negligence in his treatment of Fondahn after the latter received the injury It thinks it was the obvious duty of the master to take him to the marine hospital at Port Townsend. That was the only marine hospital on Puget Sound Although there were marine physicians at other points, there was none at Port Angeles and the court does not think the master of the *C S Holmes* was candid in stating that he thought there was one there. Moreover, the court was convinced by the evidence that the reason the master denied Fondahn's request that he be taken to Port Townsend which was but 20 miles away, was that it would cost him $100 more, that the master, owning an interest in the vessel, was controlled by a desire to reduce the expense as far as possible, and that his motives were further indicated by the fact that he gave the Port Angeles physician, when he left Fondahn in his charge, a permit authorizing Fondahn to receive medical treatment at the hands of a marine physician, he well knowing that the physician was not a marine one, and that the permit was valueless to him for any purpose The court is convinced that the injury was aggravated by the manner in which it was treated at Port Angeles, that Fondahn's pain and suffering were greatly increased, and that for the negligence of the master Fondahn should be awarded damages in the sum of at least $500

Social Medicine, Medical Economics and Miscellany

Report of Soldiers Returned as Cases of "Disordered Action of the Heart" (D A H) or "Valvular Disease of the Heart" (V D H)

This report known as National Health Insurance, Special Report Series No 8, Medical Research Committee, opens with an introduction by the committee describing the organization of the Hampstead Military Hospital lent by the committee in 1914 to the Army Council This hospital has been devoted to the study and treatment of soldiers invalided home because of heart affections It has been directed by Dr Thomas Lewis, assisted by members of the Royal Army Medical Corps and the Canadian Army Medical Corps, together with volunteers from the United States Sir Clifford Allbutt, Sir James MacKenzie and Sir William Osler have acted as an advisory committee The hospital was situated in hilly ground with access to open country, and the surroundings and charm of the hospital have been a considerable factor in its usefulness The committee presents the scientific report of sixty-three pages by Dr Thomas Lewis, setting forth the important information gained, and especially practical conclusions as to prognosis and treatment which have proved of great value

The report is based on an exhaustive study of approximately 1,000 soldiers returned as sick during training or on active service, for actual or supposed defects of the cardiovascular system Of these, 600 displayed a particular group of symptoms which are the actual basis of the report This group of symptoms, for purposes of convenience, Dr Lewis calls the effort syndrome He lays great stress on the use of this term rather than the official diagnostic category current in the British Army, "disordered action of the heart" because the soldiers are led by the latter to the belief that they are affected with serious disease of the heart, and this belief becomes a bar to recovery In addition, a number of the patients studied, although they presented no trustworthy signs of structural disease, had been returned with the diagnosis, "valvular disease of the heart" He urges the substitution of the term "effort syndrome," which does not affirm a theory of the pathology of the condition when soldiers are invalided home because of the following symptoms breathlessness pain, exhaustion, giddiness, fainting, with palpitation, headache lassitude, coldness or sweating of the hands and feet, irritability, sleeplessness, inability to fix the attention, shakiness or flushing

The physical signs on examination have been increased heart-rate, either constant or exaggerated in response to effort, posture and emotion, an exaggerated response of the blood pressure to emotion and effort, diffusion of the apex-beat, with forcible or jerky impulse, accentuation of the heart-sounds, intermittence of the heart, or respiratory irregularity Occasional slight elevations of temperature have been common, the rate of respiration has been exaggerated after exercise, sometimes at rest, coldness, blueness, and wetness of the palms or soles is frequent, tremor of the hands is the rule and the deep reflexes are generally exaggerated The urine is hyperacid, usually deposits phosphates and calcium oxalate crystals, spermatozoa are common, urea is reduced, and many of the urines give a green reduction with Fehling's solution The leukocyte count is increased, especially when patients are exercising, the increase affecting mainly the lymphocytes Certain changes in the chemical composition of the blood have been ascertained

Many of the patients have been said to have neurasthenia The symptoms are, of course, many of them neurasthenic symptoms, but the diagnosis does not add to pathologic insight in Dr Lewis' opinion He objects equally to the terms "heart strain" and "irritable heart" or "soldier's or athlete's heart"

There follows an interesting discussion of what he considers the best method of sorting military patients suffering from cardiac derangements He advocates the following method by two stages

A Preliminary sorting By this he would eliminate two groups (*a*) Those with frank pulmonary tuberculosis or exophthalmic goiter (*b*) Those with unmistakable signs of heart disease mitral stenosis, aortic regurgitation, aneurysm, definite enlargement or grave irregularity (auricular fibrillation or flutter)

He believes that auscultation is the least valuable method of differentiation, and would wholly neglect systolic murmurs and such irregularities as intermittence or extrasystoles This preliminary sorting would leave a group to be dealt with in a totally different way

B Second sorting (quick method) By this he would eliminate as unfit for any active duty

1 Those in whom the onset of symptoms dates from rheumatic fever, or in whom there has been recurrent rheumatic fever

2 Those in whom breathlessness on exertion has been tested objectively and is found to be persistently severe

3 Those in whom precordial pain repeatedly prevents exercise, the patients manifesting hyperalgesia of the cardiac skin areas

4 Those in whom the heart-rate is persistently high (120 and over) even in recumbency

5 Those in whom a single exercise test, i e, walking a flight of thirty steps, produces objective signs of distress, namely, an anxious expression, a respiratory rate of thirty-five or over which persists while the patient lies and is from time to time interrogated, or a pulse-rate which fails to fall within five beats of the pre-exercise level on lying for two minutes

6 In addition it may be said that of those in whom the symptoms are of moderate severity but of many years' duration, only a very small percentage become fit for full duty categories The class includes a number of soldiers who gave up games at school or who left heavy work in civil life on account of symptoms

C Second sorting (by graduated exercise)

All the men not promptly eliminated by the foregoing are then placed on exercise selected from the code of army exercises and already familiar to the men They are carried out under a sergeant major instructor The exercises begin with fifteen minutes of light exercises and increase by seven gradations to thirty minutes of hard exercise, eventually combined with marches of four or more miles, first without pack, then with pack, finally in full marching order

These exercises are not merely useful in sorting the patients, but have become the essential method for their treatment This is the most important practical outcome of the work. The patients gradually group themselves according to the highest grades of exercise which are borne without distress, and, in the eventual estimation of the fitness of the man for duty, this is the final test. Men who progress to the highest exercises and carry them out without distress for several weeks in conjunction with route marches become capable of full military duty Those who show continued symptoms on lower grade exercises are discharged as permanently unfit. The intermediate patients are now put into light and sedentary duty classes Since the introduction of this system approximately 50 per cent of the men who were not eliminated by the first sorting were returned to duty, half of them to full duty *Of 220 such discharged patients, 182 were still fit for duty three months later* By it, in addition, the average length of stay in hospital has been reduced from five and a half months to two months

Rest in bed has proved harmful in all cases except those with severe precordial pain, severe headache, or severe giddiness Digitalis has been without influence, bromid may be of service in the initial stages Tobacco has tended to increase the symptom The removal of local foci of infection, such as carious teeth, infected tonsils, or a chronically inflammed appendix, has been followed by conspicuous improvement in some cases Where the symptoms have followed a febrile infection, exercise treatment has been proceeded with slowly and cautiously

Part 2 of the report deals with detailed studies of the individual symptoms by different members of the staff The carbon dioxid of the alveolar air in these patients was at the lower limit of normal as contrasted with the high carbon dioxid of patients with cardiac failure Carbon dioxid tolerance was also apparently low Pain was complained of by three fourths of the patients, of various characters from uneasiness to an actual ache, more rarely stabbing pain over the precordium Hyperalgesia of the left chest was studied in a hundred cases, and was present in some degree in forty-eight, especially in those with a history of rheumatic fever or recent infection In cases with severe radiating pain, the distribution was similar to that in angina pectoris The cases with hyperalgesia responded much less satisfactorily to treatment, and it was an important sign in estimating subsequent capacity for duty Palpitation was very frequent and had no prognostic significance, the associated pulse rate being the only thing of importance The return of the pulse rate to normal after effort was slower the more marked the symptoms produced by the effort, and was quite regularly more protracted than in normal individuals

There follow reports of pharmacodynamic tests, also reports on studies of the different signs, drawing attention especially to the lack of value of systolic murmurs for diagnosis or prognosis Attention is called to the lack of correspondence between the force and diffusion of the apex-beat and the size of the heart as measured orthodiagraphically Of special interest is the fact that the average size of the heart in these patients was less than the average normal The diffusion of the apex-beat is therefore attributed to a more vigorous movement of the heart. Dilatation of the heart as a result of exercise was not seen in a single case Electrocardiographic studies threw no light whatever on the condition Details of the leukocyte counts and of the urinary studies are also given Various factors in the patients' histories are then tabulated and studied with reference to possible etiology Soldiers invalided from active service showed more favorable results than those invalided during training When the disability was of long duration, but relatively mild, a large percentage did well during active service, but if their condition changed for the worse, recovery was slower and more unsatisfactory than in those in whom the symptoms had developed recently The study of occupations showed that the incidence was very much higher in men recruited from sedentary or light occupations Rheumatic fever or chorea had existed in 23 per cent of the cases, and only 32 per cent. of these rheumatic patients returned to duty after treatment, as against 54 per cent of the nonrheumatic, the figures being still more striking when those returned to light duty are subtracted Infection played a considerable part in the clinical histories In addition to the rheumatic infections, dysentery, typhoid fever, diarrhea, pulmonary infections, etc, were immediately followed by the symptoms in 33 per cent of the patients A number more had chronic infections or had had a less recent acute illness The effect of an intercurrent infection has regularly been bad Shell shock, wounds, and other accidents, and "gassing," do not appear to have played any important part in the production of the syndrome Strain appears to have acted merely to bring out the symptoms, rather than as the true cause of the malady The relation to tobacco is not clear The relation to alcohol was of considerable interest, since 53 per cent were total abstainers, and heavy drinking was unusual It is possible that alcohol was avoided because it aggravated the symptoms

Various hypotheses are discussed under general pathology, but no conclusions would seem to be warranted Vagal tone was judged normal from the effects of atropin, the accelerator response was apparently exaggerated No evidence was found for the assumption that hyperthyroidism is the cause, and no certain proof of myocardial disease could be obtained Bacteremia was not demonstrated. The hypothesis of toxemia is discussed without any conclusions being reached

Society Proceedings

COMING MEETINGS

Michigan State Medical Society Battle Creek Sept 4 6
Western Roentgen Society Kansas City Mo July 20 21

AMERICAN PEDIATRIC SOCIETY

Twenty Ninth Annual Meeting held at White Sulphur Springs W Va May 28 30 1917

(Continued from page 145)

The Salts in Green Vegetables and the Effect of Different Methods of Cooking

Dr. Frederic H Bartlett New York The feeding of green vegetables to young infants is becoming a common practice. The plan has been followed with infants as young as 6 or 7 months Infants thus fed have shown an earlier closure of the fontanel and generally greater activity than those fed without such additions to their diet This beneficial effect has been variously explained as due to the mere addition of an increased quantity of salts to the particular combinations of the bases with the inorganic and organic acids present which provide the salts in an especially suitable form for use by the organism and to a so called vitamin effect The general opinion is that the mineral content is the important factor We undertook an analysis of cooked vegetables considering separately the solid portion ordinarily given as food and the water used in cooking We estimated the content in grams of solids of vegetables prepared by boiling taking spinach New Zealand spinach young carrots onions string beans asparagus and potatoes and estimated the solids ash calcium magnesium phosphorus potassium sodium sulphuric acid and iron and also the total nitrogen and the nitrogen as protein We also estimated the percentage lost in the water under ordinary boiling and that lost by steaming and we estimated the contents in grams of vegetables prepared by steaming and the approximate content of one tablespoonful of steamed vegetables of the various constituents We found that a large proportion of the mineral content of most vegetables is lost by boiling Calcium is the only constituent which is not affected by boiling This loss is only slightly reduced by making the time of boiling a minimum A great saving in the mineral content may be effected by steaming Spinach is the best vegetable to provide a salt addition to the diet, because the loss by steaming is about one half what it is by boiling Sodium is lost in a high degree even in steaming One hundred gm of the edible portion of uncooked vegetable when cooked yields approximately 3 tablespoonfuls of all vegetables, except carrots, which yield about 4

DISCUSSION

Dr. Godfrey R Pisek New York Frequently young infants do not like vegetables How do you get infants to eat the vegetables?

Dr J P Sedgwick Minneapolis Josephine Barry of the Department of Economics of the University of Minnesota has made a study of the retention of salts in vegetables with different methods of cooking She has shown the *necessity* of retaining these salts Her work, however, is not as complete as that of Dr Bartlett We have been trying to find the amount of calcium necessary to produce a calcium retention We find that an enormous amount is required and that the amounts usually given therapeutically are insufficient. We gave 5 gm in twenty-four hours during the first year, and found that if we used 3 gm we did not get as good results It takes twice as much calcium lactate as calcium chlorid to obtain the same results

Dr. L. Emmett Holt New York Careful attention should be paid to the minute subdivision of all vegetables fed to infants as vegetables are in the nature of a *foreign substance* in the digestive tract of young infants If the vegetables are rubbed through a fine sieve, the difficulty caused by undigested particles may be avoided We are doing this in the Babies Hospital, and it is suprising how little effect vegetables prepared in this way have on the infant's stools One point that cannot be emphasized too often is that it is a mistake to allow a child to have the bottle until 2 years of age In such children we encounter some of the worst types of malnutrition

Dr Fritz B Talbot, Boston Have you made an analysis of Swiss chard?

Dr Percival J Eaton, Pittsburgh The water in which vegetables have been cooked may be added to bean or pea soup or used as the foundation of a soup, and the mineral salts may thus be conserved

Dr Rowland G Freeman New York I have found that children with poor digestive capacity do not digest vegetables well

Dr Percival J Eaton I wish to emphasize what Dr Holt has said with reference to sieving the vegetables We sieve all vegetables fed to children until the children are old enough to be trusted to chew their food If one sees that this is done, children will have no trouble in digesting vegetables

Dr Isaac A Abt Chicago We are using a mill with two closely adjusted plates that effectually pulverizes vegetables and other foods

Dr Henry Heiman, New York I have had somewhat the same experience as Dr Freeman We must not lose sight of the fact that we may have unsplit carbohydrates as well as unsplit proteins Our experience has taught us the necessity of feeding babies green vegetables as soon as possible This is not alone for the iron contained in the vegetables but because they furnish other elements which are required for the growth of bone and other tissues

Dr. David M Cowie Ann Arbor, Mich We have had some trouble trying to use as much spinach as we did carrots We found that we did not get the cayenne pepper appearance in the stools if we used only 1 tablespoonful of carrot

Dr Henry F Helmholz, Evanston Ill In a recently published article it has been shown that vegetables dried, pulverized and made into an emulsion may be fed to infants 2 or 3 months old without any ill effects

Dr Frederic H Bartlett New York If the vegetables are rubbed through a fine sieve they may be fed either through a bottle or with a spoon It is a mistake to begin feeding vegetables in as large an amount as a tablespoonful We have not made an analysis of Swiss chard

Congenital Skin Defects

Dr. Isaac A Abt Chicago The subject of this report was an infant normal at the time of birth with the exception of two defective skin areas over each knee. The labor was normal These areas were about 1¼ inches in diameter, symmetrical and seemed to be so to speak irregularly punched out The skin around the edges was drawn and *puckered* presenting the appearance of ulcers The base was beefy red and moist A few small areas of this red ulcerated surface showed a yellow exudate A whitish scar seemed to cross the ulcerated area as though connective tissue bands indicated the beginning of a process of cicatrization The ulcers from week to week became more cicatrized and after five or six weeks were replaced by shiny white patches Most writers attribute these skin defects to errors *in development* or to inflammatory adhesions between the external layers of the skin and the amnion At the point at which this adhesion takes place, the growth of flat epithelium is retarded As the liquor amnii accumulates the so-called Simonart s bands are formed If these bands are torn loose from the integument of the fetus a skin defect remains

DISCUSSION

Dr. J P Sedgwick Minneapolis Last winter we had a case of congenital defect of the scalp I am sure we should see more of these cases if the new-born infants were turned over to the pediatrician

Case of Hemorrhagic Disease in the New-Born Treated by Direct Transfusion

Dr. J H Mason Knox, Baltimore The family history of this child was unimportant. The birth was spontaneous The child weighed 7 pounds, 6 ounces I was called to see the infant when it was 2 days old, because it had vomited a considerable amount of bloody fluid The child had no fever, and no cough, and nothing abnormal could be made out During the examination, the child passed from 3 to 5 ounces of tarry stained material, evidently hemorrhage from the intestinal tract Transfusion was determined on About 50 c c of the mother's blood was received into 2 ounces of sodium citrate solution With a syringe about 15 c c of this was introduced into the longitudinal sinus The remainder was administered intramuscularly into the buttocks The child was first seen at 9 a m, and from this time until 3 30 p m the child passed several tarry stools, was greatly blanched, the pulse became thready, and respiration shallow With rest the condition improved, and the following morning the child seemed better Two drams of the mother's milk were given at 7 a m and repeated every two hours The following day the baby had one hemorrhage from the bowels, probably a part of the original hemorrhage From this time the child went on to recovery, and is at present apparently perfectly healthy

DISCUSSION

Dr Fritz B Talbot, Boston These patients frequently have a high temperature at some stage of the disease I had one case in which there was a profuse hemorrhage under the scalp and a temperature ranging from 102 to 106 F The child recovered I have wondered when the hemorrhage is under the scalp or into the muscles, where it is not excreted, whether the high temperature may not be due to the absorption of the hemorrhage

Dr. Alfred F Hess, New York The question is suggested in this connection, which is preferable, direct or indirect transfusion, or whether one is as good as the other I believe that direct transfusion is the treatment of election, that it is better than citrated whole blood I think investigations show that the citrated blood is not the same as whole blood, and that a rise in temperature occurs when citrated blood is used

Dr Henry F Helmholz, Evanston, Ill Most of these patients will recover without direct transfusion They can be cured by intramuscular injections of blood, which can be given in amounts up to 100 c c

Dr Charles Gilmore Kerley, New York Within half a year I have had three cases of this kind relieved by intramuscular injection One-half ounce of blood injected into each buttock stops the bleeding just as effectually as the use of the serum by the Welch method The fact that blood can be obtained so readily for infants and that one does not have the trouble of separating the serum makes this method a convenient as well as a satisfactory one

Dr L E La Fetra, New York We have been giving the intramuscular injections of whole blood ever since Dr Schloss first published his method We have employed it in about fifty cases, making the injections into the loose tissues in the scapular region We do not have to use large quantities of blood It is more important that the injections be made at frequent intervals If human serum cannot be obtained, horse serum may be used

Dr. J H Mason Knox, Baltimore The blood was injected into the vein because of the desperate condition of the child

Enlargement of the Thymus Treated by the Roentgen Ray

Dr Alfred Friedländer, Cincinnati This paper is to be abstracted in The Journal, July 28, 1917

DISCUSSION

Dr Howard C. Carpenter, Philadelphia There seem to be some cases in which the thymus is really enlarged in which the enlargement is not shown by the Roentgen ray

Dr William Palmer Lucas, San Francisco It has been my experience that we may find practically the same type of picture which Dr Friedländer has shown in children without any clinical symptoms I have followed such children for months without any symptoms arising In cases of enlarged thymus with symptoms we have obtained similar results with Roentgen treatment, but not in two weeks

Dr Fritz B Talbot, Boston We have had practically the same results as Dr Lucas Many times we cannot see whether or not we have a pathologic enlargement of the thymus with the Roentgen ray We have seen the same improvement under Roentgen treatment as has been described We had one case four or five years ago in which the symptoms disappeared, but last spring they returned, and a long course of treatment was necessary

Dr David M Cowie, Ann Arbor, Mich I have had children in whom the Roentgen ray showed an enlarged thymus but we could not confirm that diagnosis Again, we have had typical cases of thymus enlargement which were not shown by the Roentgen ray

Dr Samuel McC Hamill, Philadelphia I have had cases with the Roentgen diagnosis of thymus enlargement, to which I have not paid a great deal of attention, but I finally decided to follow up such a case, and I kept the child in the ward for two weeks We then had another roentgenogram taken which showed no shadow I have wondered whether the exposure to the Roentgen ray in taking the picture could have had a therapeutic effect on the thymus

Dr J P Crozer Griffith, Philadelphia I have seen this condition steadily disappear under Roentgen treatment Children may have thymus enlargement without symptoms and die from it. Thymus enlargement is an accompaniment of status lymphaticus

Dr. Alfred F Hess, New York It seems possible that the same picture produced by enlarged thymus might be produced by enlargement of the vessels at the base of the heart. This picture is sometimes seen in children with scurvy and in adults with beriberi In such conditions the enlargement disappears with the disappearance of the disease In making roentgenograms of babies we have found that some of the controls give pictures just like those of thymic asthma, and yet no symptoms of thymic asthma are present

Dr J H Mason Knox, Baltimore Our roentgenologist is very skeptical as to whether we can detect thymus enlargement by either the Roentgen ray or physical examination

Dr. F S Churchill, Chicago How long have these cases been under observation?

Dr Alfred Friedländer, Cincinnati There are symptomless cases of enlarged thymus, others, again, produce pressure effects, or the symptoms of hyperthymus As some of these cases are exceedingly threatening, and the thymus increases or decreases in size very rapidly, the fact that a case is apparently running a symptomless course is no reason for not reducing the size of the thymus I have studied a large series of cases and have found that when there is enlarged thymus, if marked congestion occurs, as from whooping cough or bronchitis, it may light up symptoms and cause the death of the child If we get a picture in which we suspect enlargement of the vessels at the base of the heart, a few treatments will effect a change if the condition is that of thymus enlargement, so that then the diagnosis will not be difficult Some of these cases date back to 1903, and some are very recent The first patient was treated in 1903, and is now hale and hearty

Case of Congenital Heart Disease

Dr. Charles Hunter Dunn, Boston The diagnosis in this case was pulmonary stenosis, defective interventricular septum, chronic intestinal tuberculosis, chronic tuberculosis of the mesenteric lymph nodes, possible tuberculous peritonitis, rickets, and terminal bronchopneumonia The child survived fifteen months At necropsy the heart showed very marked enlargement The point of origin of the aorta and pulmonary arteries, respectively, were reversed, the aorta rising in front and to the right, and the pulmonary artery behind and to the left The foramen ovale was entirely open The tricuspid and mitral valves were normal except for widening of the orifices produced by dilatation of the ventricles There was some hypertrophy of the wall of the left ventricle, and marked dilatation of the cavity of the right ventricle without notable hypertrophy of the walls The aortic orifice was situated in the right ventricle somewhat further forward than the normal position of the pulmonary orifice The pulmonary orifice was situated in the left ventricle in the position normally occupied by the aortic orifice It showed marked stenosis There was an oval opening in the ventricular septum 5 cm in diameter situated in the usual position of that lesion The remarkable feature of this case was that the child should have lived so long especially with the additional handicap of tuberculosis

Restoration of Maternal Nursing After Sixteen Days of Complete Interruption

Dr Thomas S Southworth New York Nine days after birth an infant developed a severe cellulitis, which involved the right buttock the entire lower part of the back from the ribs to the sacrum the under surface of the chin and the upper part of the neck Owing to the erysipeloid appearance of the cellulitis, the child was removed from the breast and the mother sent home from the hospital Two weeks elapsed during which time she made no attempt to pump her breasts or retain her milk It then seemed that the baby would die if it did not receive breast milk. The mother began taking 1 pint of corn meal gruel and 1 quart of milk daily following definite instructions At first complementary feedings of malt soup mixture were given after each nursing After a few days these were stopped and the breast milk sufficed The child gradually overcame its various infections

DISCUSSION

Dr. Charles Herrman New York I have the chart of a case that shows the possibility of resuming breast feeding after an interruption of ten weeks It is rather important to remember that in mothers who have stopped breast feeding it can be resumed if a persistent effort is made

Dr J P Sedgwick Minneapolis I know of one instance in which breast feeding was resumed after an interval of nine weeks Cases have been reported in which breast feeding has been resumed after an interval of three or four months

Dr. Howard C Carpenter, Philadelphia One instance came under my observation in which both a mother and her daughter were nursing babies at the same time The babies were not thriving I had these mothers exchange babies, after which both babies did well

Case of Meningococcus Meningitis in the New-Born

Dr D J Milton Miller, Atlantic City N J This case was of particular interest because of its onset with conjunctivitis mistakenly regarded as gonorrheal A bullous eruption appeared in the second week of the disease There was a prolonged latent period before the signs of meningitis were apparent these not appearing until the fourth week The spinal fluid gelatinized at once on withdrawal The case was also unusual in regard to the large number of punctures of the fontanel ten, in so young a patient with no apparent ill effect beyond vomiting There were in all 260 c c of serum introduced with no sign of serum disease After the tenth injection of serum there was an apparent improvement, which was followed by a return of the symptoms and death

Appendicitis in a Nine Month Old Baby

Dr Isaac A. Abt Chicago This child gave a history of repeated attacks of bronchitis The physical examination revealed symptoms and signs entirely referable to the respiratory system The examination of the heart abdomen and extremities was negative. At necropsy a perforating appendicitis was found

Case of Pneumothorax in a Twelve Year Old Boy

Dr. Isaac A. Abt Chicago A boy was admitted to the hospital suffering from dyspnea His previous history was unimportant. A needle was inserted into the thoracic cavity with a catheter attached Later an incision was made and a tube inserted The following day the right side of the chest became swollen and the succeeding day the chest became edematous The emphysema became general and the child died

DISCUSSION

Dr. J P Sedgwick Minneapolis We had a case in which the infant developed a pneumothorax on the second day This child recovered We were unable to find the cause of the condition in this child

Dr Henry F Helmholz, Evanston, Ill A case somewhat similar to Dr Abt's first case came under my observation We thought we were dealing with a right sided lobar pneumonia Later symptoms of peritonitis developed and we thought this was a pneumococcus peritonitis At necropsy we found a focus in the gallbladder, and appendicitis I cannot say which was the primary infection

Dr J P Crozer Griffith, Philadelphia I recall a similar case in which we had no idea what the correct diagnosis was At necropsy we found a perforated appendix.

Hereditary Multiple Exostoses

Dr David Murray Cowie, Ann Arbor, Mich This patient a boy aged 10 years, showed nothing unusual except the multiple outgrowths and irregular thickenings of most of the bones of the skeleton many of which were plainly seen on casual observation The involvement was quite definitely symmetrical In the upper extremities the humerus radius and metacarpal bones showed thickenings and exostoses The carpal bones showed no deformities The femur showed thickening of the neck with blunt outgrowths projecting forward and downward There was thickening of the lower ends with marked spinous outgrowths projecting upward on the inner and outer aspects The tibia showed many spines projecting downward about the head The ribs, clavicle, scapulae and large pelvic bones also showed the process No prominences could be felt on the head The father of this boy showed similar larger but not so numerous skeletal changes as those of the son The changes seemed to have had little effect in hindering most of the bones from reaching their normal length and size

(To be continued)

AMERICAN GYNECOLOGICAL SOCIETY

Forty-Second Annual Meeting held at Pittsburgh May 31 and June 1 1917

(Concluded from page 145)

SYMPOSIUM ON THE RELATION OF THE GLANDS OF INTERNAL SECRETION TO GYNECOLOGY AND OBSTETRICS

Relation of the Pituitary to the Female Generative Organs

Dr. Emil Goetsch, Baltimore There is a close interrelationship in function between the pituitary and sex glands Overfunction of the pituitary anterior lobe is associated with overactivity of the sex glands Deficiency of pituitary secretion is followed by underdevelopment and genital aplasia in the young and by sexual inactivity and retrogression in the adult. Primary alterations in the function of the sex glands, as in pregnancy and after castration, are followed by pituitary hypertrophy and hyperplasia. The specific action of posterior lobe extract on the smooth musculature of the uterus and bowel has led to the wide usage of this drug in obstetric practice and in the treatment of intestinal paresis following abdominal and pelvic operations The administration of pituitary extracts is of distinct benefit in clinical states of pituitary underfunction

The Pineal Gland Influence on Growth and Differentiation, with Particular Reference to Its Influence on Prenatal Development

Dr Carey Pratt McCord, Detroit A clinical syndrome is to be associated with disturbances of the functions of the pineal gland Because of the involution of the pineal at puberty, the constitutional manifestations of pineal pathology appear to be confined to prepubertal years The essential characteristics (apart from pressure and neighborhood manifestations) are (*a*) early sexual development evidenced in the enlarged genitalia, pubic hair, general body hair, and early change in voice, (*b*) precocious mental development, manifested in maturity of thought and speech, and (*c*) general overgrowth of body to the extent that a child of 6 or 7 years may have the appearance of a child near puberty The gland is not essential for the maintenance of life The early symptoms following pinealectomy are attributable to the severe brain injury No changes attend the removal of the gland in adult animals The administration of pineal substance to young mammals is reported to hasten growth and sexual maturity In unicellular organisms (paramecia), pineal extracts increase the rate of production to more than double that of controls In larval forms (*Ranidae*), both growth and differentiation are hastened as a result of pineal feeding The inference is allowable that the pineal gland is an organ of internal secretion whose functions, however, are of minor significance in the general activities of the endocrine system

The Physiologic and Pathologic Importance of the Parathyroids

Dr. Carl Voegtlin, Washington, D C The presence of a minimum of parathyroid tissue in the body is essential for life and the continuation of normal metabolism Parathyroid insufficiency seems to be characterized by an increased irritability of the nervous system to the galvanic current, which may be due to the withdrawal of soluble calcium salts from the blood and tissues Parathyroid insufficiency leads to an alkalosis which is converted into an acidosis as a result of active tetany Definite metabolic changes take place in animals after complete parathyroidectomy Pregnancy puts an extra strain on the functions of the parathyroid, as evidenced by the appearance of tetany during this period in partially parathyroidectomized animals Tetany has been observed during lactation in animals with parathyroid insufficiency Interruption of lactation was followed by recovery The offspring of partially parathyroidectomized animals exhibit a marked increase in nerve irritability An intravenous injection of soluble calcium or strontium salts or hydrochloric acid almost instantly removes the symptoms of tetany However, tetany may reappear after this treatment, and the life of such animals cannot be saved by the continued administration of calcium The injection of parathyroid extract seems to have a temporary curative effect on tetany animals Isotransplantation of parathyroid into animals with parathyroid insufficiency is usually successful A condition which might justly be termed hyperparathyroidism is unknown at the present time

Relation of the Parathyroids to the Female Genital Apparatus

Dr Eugene H Pool, New York No direct relationship has been established between the parathyroids and the female sex organs, no morphologic changes in the parathyroids have been noted during pregnancy, yet apparently there is a connection between the parathyroids and the sex processes in the female Tetany, the clinical evidence of insufficient parathyroid function, is somewhat prone to occur in menstruating, pregnant and puerperal women as well as patients suffering from gynecologic diseases or who have undergone gynecologic operations The cause of maternal tetany is now referred to parathyroid insufficiency The function of the parathyroids is apparently closely connected with calcium There is reason to believe that maternal tetany and lactation tetany are associated with calcium deficiency Latent tetany, or a subtetanic condition, is much more common in pregnant and puerperal women than is usually assumed In the treatment of maternal tetany, the administration of calcium in large doses is followed by beneficial results in the great majority of the cases

The Thyroid in Relation to Gynecology and Obstetrics

Dr David Marine, Cleveland There is evidence of a thyroid sex gland interrelation in the female in association with the development of secondary sexual characters, with menstruation and with pregnancy and also in the male at puberty, but to a very slight degree The meager evidence available would tend to indicate that the interstitial cells of the ovary and, perhaps, also, the suprarenal cortex play a major role in this relation in the female, as certainly the cells of Leydig do in the male

The Endocrine Function of the Pancreas and Its Relation to the Sex Life of Women

Dr A J Carlson, Chicago There is, at present, no evidence of any specific relations of the endocrine functions of the pancreas to the gonads, male or female, or to menstruation, pregnancy and lactation Absolute diabetes, induced after conception, leads to death of the fetus Absolute diabetes probably renders conception impossible Partial diabetes under careful dietary control permits of normal sex life of women (menstruation, normal pregnancy, normal child, lactation), and pregnancy under such conditions does not aggravate the diabetes But in the absence of such dietary control the condition of pregnancy aggravates the diabetes in the mother, and uncontrolled diabetes in the mother is extremely injurious to the fetus There is some evidence that in late stages of pregnancy the fetal pancreas may function for the mother

Influence Exerted by the Suprarenal Bodies on the Genital System

Dr Swale Vincent, Winnipeg, Manit There is considerable clinical evidence that tumors of the suprarenal cortex are frequently associated with sex abnormalities, and that when cortical tumors occur in the female, an accentuation of male secondary sexual characteristics develops, and simultaneously a hypoplastic condition of the internal generative organs supervenes Additional evidence as to a connection between suprarenal cortex and the sexual organs is furnished by the enlargement of the cortex during breeding and pregnancy Feeding young animals with suprarenal gland substance seems to stimulate the growth of the testes

Relation of the Ovary to the Uterus and the Mammary Gland

Dr Leo Loeb, St Louis The corpus luteum has a sensitizing action on the uterus If the uterus is incised or mechanically stimulated at the time during which the corpus luteum is elaborating this growth substance, maternal placenta (deciduoma) is formed The mechanical stimuli, therefore, assume in this respect the function which the ovum exerts under normal conditions The form of growth response of each species is characteristic No specificity exists in the sensitizing substance given off by the corpus luteum, as far as different individuals of the same species are concerned. The life period of experimental deciduomas is short, except in pregnancy, during which their persistence is prolonged Corresponding to and dependent on the cyclic ovarian changes, uterine cyclic changes occur The cycle consists of heat, growth, with associated glandular activity, regression and interval Heat probably is due to maturation of the follicles and is dependent on the absence of the corpora lutea, growth activity is the result of corpus luteum secretions, regression marks the cessation of corpus luteum secretion, which is followed in the interval by a condition of rest Pregnancy causing a persistence of the corpus luteum is characterized by an accentuation but not a prolongation of the active phase, and an inhibition of the uterine cyclical changes throughout gestation While it is possible during pregnancy to produce experimentally a new ovarian cycle through excision of the corpora lutea, such a new ovarian cycle is not followed by a new uterine cycle During pregnancy a mechanism is at work preventing the uterine mucosa from responding to the stimuli given off by various ovarian structures It follows that the corpus luteum subserves at least two functions, inhibiting ovulation and producing a substance which causes growth in the uterus The ovary shows other noncyclic functions It has a trophic influence on the genitals, and either primarily or secondarily determines the development of the secondary sexual characters The ovary likewise controls the development of the mammary glands It exerts a trophic influence on this organ, and determines its normal cycle During heat and subsequent to ovulation, proliferated changes occur, these cease while the corpus luteum develops and functionates The incidence of breast cancer in mice is greatly reduced by castration

Transplantation and Retention of Ovarian Tissue After Hysterectomy

Dr. William P Graves Boston After extirpation of the uterus, vasomotor disturbance ensues with approximately equal frequency whether the ovaries are retained in situ, totally ablated or transplanted Retention of ovarian tissue after hysterectomy is of little or no physiologic value, and may be productive of serious harm to the patient

The Placenta Regarded as a Gland of Internal Secretion

Dr. Robert T Frank New York The experimental work of the last decade proves that Halban was correct in ascribing to the placenta an action on the uterus and breasts Placental extracts (mainly the lipoid fraction) rapidly induce hyperplasia of the uterus and breast gland tissue and nipples, in castrated or in noncastrated animals The chemical substance which induces these changes can exert its influence in the absence of the thyroids suprarenals, pancreas, or in the absence of thyroid and suprarenals combined In view of the apparent identity of corpus luteum and placental substance, the question arises whether the placenta acts merely as a storage reservoir for corpus luteum secretion during the latter half of pregnancy, or whether the placenta elaborates a hormone of its own

Relation of the Sex Glands to Metabolism

Dr. John R Murlin and Dr Harold C Bailey, New York Removal of the ovaries of our dogs was followed by an increase in weight in both and a lowering of the metabolism in one from 12 to 17 per cent and in the other from 6 to 14 per cent. We feel that indirect action has a bearing on this reduction and we do not believe that the indications point decisively to the loss of a specific stimulus from the ovary affecting the oxidative processes of the cells

DISCUSSION ON THE RELATION OF THE GLANDS OF INTERNAL SECRETION TO GYNECOLOGY AND OBSTETRICS

Dr. J Whitridge Williams Baltimore The posterior lobe of the pituitary is a most powerful therapeutic agent one which is doing a great deal of good and also a great deal of harm The injection of a cubic centimeter of any of the ordinary pituitary extracts in many cases has a marvelous effect Within three minutes after injection of this drug the uterus which previously has been acting in a very sluggish way, takes on intense activity and often labor will be brought to a standstill within the next few minutes About the thyroid, my practical experience with pregnancy complicated by goiters of various kinds has shown me that the condition can in great part, be disregarded

Dr. George Gellhorn St Louis In one case of kraurosis vulvae there has been permanent relief after feeding the patient ovarian extract. Another patient was temporarily improved after injection of the extract.

Dr John G Clark Philadelphia The preservation of normal ovarian tissue is of vital value in younger women If there is any one point that is definitely conclusive, it is the retention of ovaries or an ovary regardless of whether or not the uterus is present. We have observed in the younger women that when ovaries suggestively diseased were preserved these patients did not have a satisfactory or postoperative convalescence. A large proportion of them subsequently suffered pain and distress free from a pathologic condition In fibroid cases in young women in whom the ovaries were normal, we saw infinitely better results than under the older methods when the ovaries were removed

Dr. Francis Carter Wood New York We have tried the Beatson operation experimentally and the influence of the removal of the ovaries on carcinoma of the breast. This operation produces a temporary effect which is no doubt due to the removal of the secreting substance of the ovary or to nutritional and vascular conditions

Clinical Study of Blood Pressure, Pulse Pressure, Hemoglobin in Postoperative Shock, Postoperative Hemorrhage, and Postoperative Cardiac Dilatation

Dr. John O Polak Brooklyn There is a constant rise of from five to fifteen points in the hemoglobin readings following anesthesia with ether, when such anesthesia occupies more than thirty minutes Consequently, allowance must be made for this rise in using hemoglobin estimations as a diagnostic sign in internal bleeding The erythrocyte count is also increased, but its variation from the preoperative is so slight that it does not warrant any conclusions In the majority of cases there is a moderate fall in both the systolic and the diastolic blood pressure following ether anesthesia The blood pressure returns to normal, that is, to preoperative reading, in from twelve to forty-eight hours The inhalation of oxygen after the withdrawal of the ether vapor diminishes this fall in blood pressure, but is only transient in its effect In cases of shock, especially when there has been much blood lost during the operation, the fall in blood pressure is greater than after long operation without blood loss The pulse pressure is a better index of hemorrhage or cardiac failure than the systolic pressure There is a constant rise in the leukocyte count in hemorrhages, while the leukocytes fall in shock

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Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

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1 *Cesarean Scar an Anatomic Study J R Losee, New York—p 1
2 Several Every Day Obstetric Problems J B DeLee Chicago—p 15
3 Cesarean Section in Placenta Praevia G M Boyd, Philadelphia—p 26
4 Tampon Treatment of Placenta Praevia J O Arnold Philadelphia—p 38
5 Accouchement Force in Placenta Praevia A W Tallant Philadelphia—p 46
6 Intermediate Repair of Injuries of Genital Canal in Childbirth B C Hirst Philadelphia—p 50
7 Immediate Repair of Injuries of Parturition W P Pool Brooklyn—p 53
8 Methods of Treatment of Placenta Praevia R M Beach Brooklyn—p 57
9 Dilatation, Vaginal Plastic Operations, or Stem Pessaries as Exclusive Treatment for Sterility F C Holden Brooklyn—p 64
10 Case of Adenomyoma of Ovary M Rabinovitz New York—p 67
11 *Some Causes of Fetal Death W Pfeiffer Brooklyn—p 74

1 **Cesarean Scar**—Observations were made by Losee from twenty different specimens of uterine scar removed from the uterus at or near term All the previous cesareans were the transperitoneal operation of the high incision type In nine there was a complete or partial rupture of the uterus, and in eleven an incision was made either through the old scar or adjacent to it, and the whole scar or the edges were afterward excised for examination Many specimens were taken while the uterus was partially contracted, and others after rupture with complete contraction Losee says that the strength of the uterine scar after cesarean section depends on the absence from the wound of infection and foreign material and on the perfect coaptation of the incised surfaces A perfectly healed wound leaves the myometrium as strong after operation as before, so far as can be determined by the histologic examination of the tissue in the line of the former incision A continuous suture in the myometrium adjacent to the decidua may assist in preventing the separation of the cut surfaces by blood clot or lochia in addition to the usual interrupted suture through serosa and myometrium The placenta in a subsequent pregnancy has little or no effect in weakening the firmly united scar but if the scar is already weak it may accentuate this weakness Other than a small amount of fibrous tissue beneath the peritoneum, the myometrium in line with the former incision contains no scar tissue and the uterine muscle regenerates Rupture invariably takes place through the site of the former scar and not through the adjacent muscle tissue Without definite means of estimating the strength of the uterine scar after cesarean section subsequent pregnancies must always be carefully observed as they approach term

3 **Cesarean Section in Placenta Praevia**—Boyd and an associate have gone over the records of the Philadelphia Lying-In Charity, and found that in 8,697 cases there were fifty-nine of placenta praevia, one in 147 This high frequency is due to the fact that this institution does a large amount of emergency work In fifteen of the cases, the patients were primiparas, and in forty-four multiparas Six cases were of the central type, and fifty-three, marginal and partial The average length of gestation for a case was 7 3 months Twelve of these women were at term—20 per cent Seven mothers died—11 8 per cent Of these seven cases, three were of the central type All of the patients who died were exsanguinated on admission, and four of the seven were practically dying Deducting these four, the mortality rate is 5 per cent The methods of treatment employed were tampon, metreurysis, manual dilatation and podalic version In two cases, cesarean section was performed The total fetal mortality was 79 per cent, but in these cases only 50 per cent of the infants were viable At the Medico-Chirurgical Hospital, the records show that in 1,085 women treated, there were fifteen of placenta praevia with no maternal death The fetal mortality, however, was 66 3 per cent One patient was a primipara, and fourteen were multiparas There was one cesarean section In this case there was profuse hemorrhage with signs of infection For this reason, the Porro operation was done The mother recovered, but the child died on the following day Taking the two institutions together there were seventy-four cases Leaving out of consideration the four women that were practically dead when admitted, the mortality in these cases was but 4 per cent

11 **Causes of Fetal Death**—Pfeiffer reports a case in which death was due to multiple twists in the cord

American Journal of Physiology, Baltimore

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12 *Influence of Thyroid Feeding on Carbohydrate Metabolism S Kuriyama, New Haven, Conn —p 481
13 Variations in Irritability of Reflex Arc Flexion Reflex Variations, Compared with Those of the Nerve Muscle Preparation E L Porter, Philadelphia —p 497
14 Behavior of Holothurians in Balanced Illumination W J Crozier —p 510
15 *Effect of Dextrose Given Intravenously on Blood Composition and Urinary Secretion D M Davis, Baltimore —p 514
16 *Effect of Epinephrin on Muscular Fatigue C M Gruber, Albany, N Y —p 530
17 Effect of Phosphorus Poisoning on Catalase Content of Tissues W E Burge, Urbana, Ill —p 545
18 Nature and Properties of Metathrombin A R Rich, Baltimore —p 549
19 Changes in Clotting Power of Oxalated Plasma on Standing A R Rich, Baltimore —p 571
20 Diastatic Action of Saliva in Horse R J Seymour, Columbus —p 577
21 *Relation between Thromboplastic Action of Cephalin and Its Degree of Unsaturation J McLean, Philadelphia —p 586

12 **Thyroid and Carbohydrate Metabolism**—The influence of thyroid feeding on the glycogen content of the liver, blood sugar content, assimilation limit for dextrose and also on epinephrin hyperglycemia and glycosuria was studied by Kuriyama Fresh thyroid gland of pigs or desiccated thyroid administered by mouth in doses of 3 to 5 gm (fresh) or 0 5 to 1 7 gm (desiccated) per day, decreased the glycogen content of the liver of white rats distinctly in three to five days Control animals, fed on the same diet with the addition of muscle tissue or egg, do not show any such change, even when the food amount is regulated so that they lose as much in body weight as the thyroid fed animals The influence of thyroid feeding on liver glycogen can be very easily removed by omitting thyroid from the diet The liver shows its normal glycogen content two or three days after the cessation of thyroid administration even when the loss of body weight has not been regained This phenomenon seems to show that the changes resulting from thyroid feeding and causing the loss of liver glycogen, are not of a serious morphologic nature When dextrose is introduced parenterally to fasted rats which show a very low glycogen content of the liver, the amount of liver glycogen increases markedly in a few hours This does not seem to be the case in the thyroid fed rats Experimental hyperthyroidism does not change the sugar content of the blood in either rats or rabbits Spontaneous glycosuria does not result from thyroid feeding in either rats or rabbits The tolerance of thyroid fed rabbits for dextrose, parenterally administered, does not differ from that of normal animals Nearly the same degree of hyperglycemia and glycosuria can be induced by epinephrin injection in thyroid fed as in control rabbits The suprarenal gland of thyroid fed rats contains approximately the same amount of epinephrin as that of normal rats

15 **Blood Sugar and Urinary Secretion**—Under experimental conditions unusually free from disturbing influences the sugar output per unit of time shows a direct relationship with the blood sugar level On intravenous injection of a given quantity of dextrose, the amount of diuresis produced depends on the amount of water available, within certain limits If a very concentrated solution is given, the body is robbed of water If large quantities of water are given with the dextrose, its percentage retention in the body is increased and water is retained along with it, so that less sugar is excreted, despite diuresis This retention is not confined to the blood, but occurs also in the tissues If more water is available, more dextrose is excreted into the urine at a given level of blood sugar than when less water is available

16 **Effect of Epinephrin on Muscular Fatigue**—Gruber found that in the fatigued, unaltered muscle epinephrin may increase the height of muscular contraction by a twofold action, by improvement of the blood supply (vasodilatation) and by its chemical action on some substances in the muscle In a muscle in which the nerve is cut and stimulated epinephrin in small doses however administered, does not better the circulation and must therefore produce its effect of increasing the height of muscular contraction by its chemical (specific) action alone The following three processes which normally go on in the muscle may be greatly accelerated by epinephrin and it is not improbable that one or all of these will finally prove to be the way in which epinephrin produces its effects (1) the conversion of glycogen into sugar, (2) the reconversion of lactic acid into sugar (transformation of fatigue products), (3) the oxidizing of lactic acid into carbon dioxid and water (destruction of fatigue products)

21 **Thromboplastic Action of Cephalin**—McLean's experiments show that the thromboplastic action of cephalin bears a direct relation to its degree of unsaturation, the greater the degree of unsaturation the greater the degree of thromboplastic activity Cephalin exhibits most effectively its power to hasten the coagulation of the blood shortly after its isolation from the tissues Cephalin which has become saturated beyond a certain degree either by reduction or oxidation, completely loses its thromboplastic activity Cephalin in solution which has become saturated or partly saturated gives an acid reaction and retards the coagulation of blood As cephalin becomes saturated it gradually loses its property of solution in ether or chloroform

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40 Latent Tuberculosis Its Importance in Military Preparation F R Baldwin Saranac Lake N Y—p 410
41 Bismuth Poisoning and Nitrite Poisoning from Use of Bismuth Subnitrate Report of Three Cases. J Phillips Cleveland—p 419

41 **Bismuth and Nitrite Poisoning**—One of the cases cited by Phillips followed the injection of bismuth paste It proved fatal Three months before the patient jabbed a pitchfork into his left knee. The knee became swollen and red so that it was necessary to open the joint and drain Because of a persistent sinus following incision a month later this was injected with bismuth paste The sinus closed over, but five weeks previous to death the patient began to complain of a sore mouth which continued to get worse until he died The blood examination on admission to hospital showed 3 900 000 red blood corpuscles 30 000 white blood corpuscles and 70 per cent hemoglobin At first the case was thought to be one of cancrum oris as the slough obscured the pigmentation After about ten days the slough in the mouth separated, leaving a bleeding surface and then there could be made out very definite pigmentation of the mucous membrane and the line about the teeth A roentgenogram of the knee revealed the presence of a large quantity of bismuth in the knee joint and in the crural bursa The other two cases illustrate nitrite poisoning from the use of bismuth subnitrate A 4-year-old child was given a dram of bismuth subnitrate in a starch enema because of colitis Twelve hours later she became nauseated was very cyanosed pulse small and weak, and partial coma supervened This condition continued throughout the day The blood was very dark. The colon was irrigated repeatedly and injections of camphor given hypodermically and within twenty-four hours she was very much better the cyanosis being less marked By the third day all the symptoms had disappeared A man aged 50 had been given an ounce of bismuth subnitrate in milk for Roentgen ray examination of his stomach During the night the symptoms of poisoning appeared and persisted for three days

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58 Valve to Regulate Delivery of Air and Ether Vapor in any Proportion F L Gates New York—p 41
59 *Relation of Mosquitoes and Flies to Epidemiology of Acute Poliomyelitis H Noguchi and R Kudo, New York—p 49
60 *New Anaerobic Methods W G Smillie New York—p 59
61 Methods for Determination of Pneumonia Types F G Blake New York—p 67
62 Cicatrization of Wounds New Mathematical Expression of Cicatrization A J de Beaujeu France—p 81
63 *Id Bacteriologic Asepsis of Wound A Vincent France—p 83
64 Id Use of Chloramin T Paste for Sterilization of Wounds. M Daufresne France—p 91
65 *Id Sterilization of Wounds with Chloramin T A Carrel and A Hartmann France—p 95
66 *Toxin and Antitoxin of and Protective Inoculation against Bacillus Welchii C G Bull and I W Pritchett New York.—p 119

57 **Cultivation of Spirocheta Obermeieri**—The successful cultivation of *Spirochaeta obermeieri* directly from the blood of patients suffering from European relapsing fever is reported by Plotz The studies were carried on in Serbia in the winter of 1915 The successful cultures five in all were made from cases clinically typical of European relapsing fever occurring in civilians and soldiers then residing in Macedonia The method employed is the same as that used by Noguchi Plotz succeeded in growing *Spirochaeta obermeieri* from mice infected with relapsing fever This spirochete had previously been kept alive by continued passage from animal to animal for a considerable length of time It has been transplanted for five generations in two cultures

58 **Valve for Regulation of Air and Ether**—A valve is described by Gates for the control of ether vapor for anesthesia which regulates the mixture of ether vapor from a Woulfe bottle with air in any proportion without changing the volume or the pressure at which the mixture is delivered The regulation of the air stream both to and from the ether bottle controls the mixture accurately and is an essential feature of the valve

59 **Epidemiology of Acute Poliomyelitis**—The experiments performed by Noguchi and Kudo indicate that it is improbable that the virus of poliomyelitis is taken up by mosquitoes or by fly larvae Not only does the virus fail to multiply but probably it is rapidly destroyed within the body of the insects The notion that these nonbiting flies may act as intermediary hosts or a virus reservoir is not justified by the evidence brought out in the authors' study

60 **New Anaerobic Methods**—Anaerobic methods have been devised by Smillie which depend on the catalytic action of platinized asbestos on hydrogen and oxygen The methods may be utilized for the growth of anaerobes in test tubes on Blake bottles in flasks and in a large container Because oxygen is so completely removed the methods are said to be of great value in the successful cultivation of absolute anaerobes

61 **Determination of Pneumococcus Types**—The most satisfactory method of determination of pneumococcus types in lobar pneumonia is by the intraperitoneal inoculation of a mouse with the patient's sputum The diagnosis of type is made directly on the peritoneal exudate Certain factors in the method commonly used have interfered with the rapid determination of types in an appreciable number of cases notably the growth of other organisms in the peritoneal exudate together with pneumococcus and some confusion has arisen because occasional strains of pneumococci have been encountered that show cross agglutination reactions when undiluted immune serum is used To obviate these difficulties a new method for the determination of types has been devised

by Blake. It depends on the fact that there is produced by the growth of the pneumococcus a soluble substance which is present in the peritoneal exudate of the mouse in sufficient quantity to give a specific precipitin reaction with the homologous immune serum The precipitin method can be used in all instances in which the determination of types by the agglutination method is possible, and it possesses certain distinct advantages which make it available when the agglutination method is impracticable It is of particular value as a time-saving device in those instances in which the presence of other organisms together with the pneumococcus in the peritoneal exudate causes a delay of eighteen hours or more before the type of pneumococcus can be definitely established It is therefore recommended as the method of choice in all cases If desired, both the agglutination and precipitin methods may be applied to the same specimen of peritoneal washings

63 **Bacteriologic Asepsis of Wound**—Vincent found that of twenty infected cases treated with Dakin's solution or chloramin paste, seven were bacteriologically sterile This proved that, in general, 35 per cent of the patients thus treated become bacteriologically aseptic This degree of asepsis is not necessary in order to suture the wound, the absence of bacteria in films being sufficient Complete sterilization of wounds, can, therefore, now be accomplished

64 **Chloramin-T Paste for Sterilization of Wounds**—According to Daufresne, Dakin's toluene sodium p-sulphochloramid mixed with sodium stearate, forms a paste sufficiently active and stable to be used in the treatment of wounds He uses the following formula neutral sodium stearate, 86 gm, chloramin-T, 4 to 10 gm, distilled water, 1,000 c c The preparation of chloramin paste is as follows Boil a liter of distilled water and add 80 gm of stearic acid When this has melted, gradually add enough caustic soda to saponify the fatty acid and after complete solution add 4 to 10 gm of chloramin-T, according to the concentration desired The mixture is then placed in a mixing machine and shaken until thoroughly cooled The paste is a smooth, snow-white cream The principal disadvantage of this paste is its poor power of preservation, numerous trials showed that 10 per cent of chloramin-T disappeared per month The stability of the paste is limited by the stability of the solution of chloramin-T, because the antiseptic is in solution in the paste

65 **Sterilization of Wounds with Chloramin-T**—Under the conditions of experiments performed by Carrel and Hartmann chloramin paste maintains the asepsis of a wound already sterile, and sterilizes an infected wound Under the same conditions chloramin paste causes no apparent modification of the cicatrization curve of an aseptic wound

66 **Toxin and Antitoxin of and Protective Inoculation against Bacillus Welchii**—The experiments presented by Bull and Pritchett appear to admit of one interpretation only, namely, that the Welch bacilli, under suitable conditions of growth, produce an active exotoxin, to which their pathogenic effects are ascribable The toxic product, moreover, acts on the local tissues and the blood in a manner identical with the action of the cultures With the toxic product animals may be immunized actively and yield an immune serum which neutralizes the toxin perfectly and in multiple proportion The toxic bodies would seem to be at least two in number one causing blood destruction, hence an hemolysin, and the other acting locally on the tissues and blood vessels, causing edema and necrosis and probably exerting general toxic action in addition The part each plays in bringing about the lethal effect seems to be determined by the manner of inoculation to bring out the hemolytic action intravenous injection is indicated, to bring out the locally destructive action, subcutaneous or intramuscular injection is required.

Journal of Pharmacolcgy and Experimental Therapeutics, Baltimore

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67 *Action of Sodium Citrate on Isolated Intestine W Salant and E W Schwartze, Washington, D C—p 497
68 *Action of Succinate and Its Hydroxy Derivatives on Isolated Intestine W Salant, C W *Mitchell* and E W Schwartze, Washington, D C—p 511
69 *Production of Renal Changes by Oil of Chenopodium and Fatty Oils, and Protective Action of Diet on Kidney W Salant and R Bengis, Washington, D C—p 529

67 **Action of Sodium Citrate on Isolated Intestine**—Salant and Schwartze found that a solution of hundredth-normal sodium citrate causes an increase in the force of the rhythmic contractions of the small intestine of the rabbit, the rate being reduced at the same time A similar effect was observed with two-hundredth-normal sodium citrate, but it was less pronounced and not as constant Still weaker concentrations were only rarely effective Concentrations greater than hundredth-normal produced depression of contractility, almost complete inhibition being caused by tenth-normal sodium citrate Recovery was observed in all cases after washing with Locke's solution Depression only was observed when the large intestime of the rabbit was exposed to the action of different concentrations of sodium citrate Depression of the small, as well as of the large intestine of the cat, was produced by sodium citrate in all concentrations above four-hundredth-normal Weaker solutions had no effect The action of sodium citrate is probably due to the stimulation of the sympathetic nervous structures

68 **Action of Succinate on Isolated Intestine**—In the experiments reported on by the authors, strong and medium concentrations of sodium succinate generally caused stimulation of the intestines, the effect on the small intestines being more marked Strong concentrations of malate cause depression of the entire intestine, but weaker solutions may cause moderate stimulation of the small intestine and depression of the large intestine Solutions of twenty-fifth to four-hundredth-normal concentrations of levotartrate cause stimulation of the small intestine and depression of the large intestine Dextrotartrate causes depression of the large and of the small intestines with higher concentrations, with medium concentrations it may cause occasional stimulation only of the small intestine, but no change was observed in the large intestine Solutions of hundred-normal mesotartrate, as well as of the racemate, may cause moderate stimulation of the small intestine Depression of the large intestine is caused by all of the hydroxy derivatives, the action being increased with the number of the hydroxyl groups Locke's solution plus tenth-normal sodium chlorid causes depression of the intestines When twenty-fifth-normal is added, this effect is very moderate and is inconstant Smaller quantities of salt do not affect contractility The response of the large intestine to hypertonic solutions is more pronounced than that of the small intestine

69 **Production of Renal Changes by Oils**—According to Salant and Bengis the administration of the oil of chenopodium by mouth and subcutaneously may be followed by renal disturbances in rabbits fed exclusively on oats Similar effects were caused by several fatty oils such as cottonseed oil castor oil olive oil and cocoanut oil when given by mouth, but not when injected subcutaneously No evidence of impaired kidney function was obtained when the same, or even larger, doses were administered to rabbits on a diet of carrots The results obtained with the oil of chenopodium are attributed by the authors to malnutrition of the kidney due to lessened blood supply The changes following the injection of fatty oils are accounted for by assuming that the products of hydrolysis of the oils, especially the glycerin, might cause local irritation and congestion, thus favoring the absorption of poisonous products from the intestine which would cause renal irritation The protective action of carrots might be due to the inhibition of the development of nephritic poisons in the intestine.

Journal-Lancet, Minneapolis

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70 Methods of Graphically Recording Tremors, Clonus and Reflexes by Means of Tremograph R E Morris and H W *Woltmann*, Minneapolis—p 423
71 Practical Value of Roentgen Ray in Gastro-Intestinal Diagnosis H S *Willson*, Minneapolis—p 428
72 Roentgen Diagnosis of Nontuberculous Diseases of Lungs A B Moore, Rochester—p 430
73 Early Roentgen Diagnosis of Pulmonary Tuberculosis F S Bissell, Minneapolis.—p 431

74 Pylorospasm in Infants J P Sedgwick Minneapolis—p 437
75 Tuberculosis and War P L Benjamin, Minneapolis—p 442
76 Simple Method of Removing Foreign Bodies H W Stone, Wayzata—p 443
77 Angioma and Radium G B New, Rochester—p 445

Journal of Cutaneous Diseases, Boston

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78 Experimental and Clinical Studies of Toxicity of Dioxydiamino Arsenobenzol Dichlorhydrate J I Schamberg, J A Kolmer and G W Raiziss Philadelphia—p 286
79 Case of Granuloma Pyogenicum and High Blood Pressure D W Montgomery and G D Culver San Francisco—p 338
80 Congenital Ichthyosiform Erythroderma G M MacKee and I Rosen New York—p 343
81 Histopathology W J Heimann, New York—p 362

Laryngoscope, St Louis

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82 Case of Bilateral Congenital, Osseous Atresia of External Auditory Canal with an Exceptionally Good Functional Result Following Operation L. W Dean and T R Gittins, Iowa City, Iowa—p 461
83 Lung Abscess as Sequel to Tonsillectomy I Frank Chicago—p 474
84 Extensive Carcinomatous Involvement of Accessory Sinuses of Nose with Intracranial Invasion M A Warlow, Philadelphia—p 484
85 Case of Safety Pin in Esophagus Displaced During Anesthesia and Lodging in Postnasal Space A S Kaufman Philadelphia—p 487
86 Case of Membranous Infection of Nose and Antrum, Resulting Fatally A. S Kaufman Philadelphia.—p 488
87 Removal of Tonsils as Prophylactic Measure in all Children of Four Years of Age R W Perry Seattle—p 490
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92 Electric Noise Apparatus M Lubman, New York.—p 512

Medical Record, New York

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94 Radium in Carcinoma of Upper Air Passages D B Delavan, New York.—p 1130
95 Diatheses in Childhood J Epstein New York.—p 1132
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97 Physicians Influence in Charity Work. T D Crothers, Hartford Conn—p 1135
98 Report of One Hundred Successful Operations on Anal Sphincters for Treatment of Various Complications C A Bucklin Glasgow Scotland—p 1137
99 Shame and Physician J H Marcus Atlantic City N J—p 1139
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101 Trench Foot. B Sherwood Dunn Paris.—p 1143

New York Medical Journal

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102 Summary of Wassermann Tests Done During 1916 in Philadelphia General Hospital R C Rosenberger Philadelphia—p 1233
103 Effects of Fatigue on Aged A L. Fisk New York—p 1235
104 Plea for Early Diagnosis and Treatment of Acute Catarrhal Appendicitis M Lewson New York.—p 1236
105 Case of Bilateral Spontaneous Nontuberculous Pneumothorax with Necropsy A Meyer New York—p 1238
106 New Method for Auditory Percussion of Chest. R M Alexander Reading Pa—p 1242
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110 Infantile Pyloric Stenosis J Epstein New York.—p 1251

Surgery, Gynecology and Obstetrics, Chicago

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111 Use of Free Grafts of Whole Thickness Skin for Relief of Contractures J S Davis Baltimore—p 1
112 *Pulmonary Fat Embolism—Frequent Cause of Postoperative Surgical Shock. W W Bissell Rochester Minn—p 8
113 *Relation of Acidosis to Anesthesia. G A Caldwell and M Cleveland New York.—p 22
114 *Results Following Treatment of Pelvic Inflammatory Lesions by Surgical Measures J G Clark and C C Norris Philadelphia—p 33
115 Spinal Anesthesia C C Yount, Panama City, Panama—p 40
116 Cholecystectomy M G Seelig, St Louis.—p 45
117 Benign Tumors of Intestines with Special Reference to Fibroma Report of Case E L King New Orleans—p 54
118 Fatty Tumors of Uterus Report of Case C W W Elkin and S R Haythorn, Pittsburgh—p 72
119 Study of One Hundred Consecutive Fractures of Shafts of Both Bones of Forearm with End Results in Ninety Five A O Whipple and F B St John, New York—p 77
120 Cardiolysis Additional Case J E Summers, Omaha—p 92
121 Tuberculosis of Hip Joint J K Young, Philadelphia—p 95
122 Hydatid Cyst of Liver Report of Two Cases G B Johnston and M Willis Richmond, Va—p 101
123 Kondoleon Operation for Relieving Lymphatic Blocking, Report of Case R S Barber Brooklyn—p 104
124 Diagnosis and Treatment of Tumors of Urinary Bladder F M McCallum and C K Smith, Kansas City, Mo—p 105
125 Congenital Rectovaginal Fistula, New Operation C. A Potter, St Joseph Mo—p 110

112 **Pulmonary Fat Embolism**—During the past eight months Bissell has observed six instances of fatal postoperative fat embolism in the necropsy service of the Mayo clinic Three of these followed breast amputation, one ventral herniotomy, one craniotomy for brain tumor, and one, laminectomy for spinal cord tumor

113 **Relation of Acidosis to Anesthesia**—In thirteen cases receiving 20 to 40 gm of sodium bicarbonate in the twelve hours prior to operation the anteoperative urine showed neither acetone nor diacetic acid while 76 per cent showed acetone postoperatively, and 69 per cent. showed diacetic acid The elimination of acetone and diacetic acid postoperatively with none in the anteoperative urine was accompanied by a greatly increased alkalinity of the blood, up to 53 mm or even 59 mm in some cases In nine cases in which the patients received 20 gm of sodium bicarbonate in 500 c.c of 4 per cent glucose solution immediately after operation, Caldwell and Cleveland found the elimination of acetone and diacetic acid only slightly different from that of the untreated cases The carbon dioxid tension in this series was well over 40 mm and in one case as high as 54 mm in the blood taken after operation These treated cases followed closely the untreated cases in all respects except the high carbon dioxid tension

114 **Treatment of Pelvic Inflammatory Lesions**—From a study of more than 500 cases in which the postoperative and remote results of surgical intervention in pyogenic infections in the fallopian tubes were considered Clark and Norris conclude that a course of conservative preparatory treatment decreases mortality and enhances the chances for securing a good functional restoration of the pelvic organs In all cases of acute infections of the fallopian tubes they advise that the patient should be kept under observation until the course of the case is defined (*a*) In the greater *majority* the temperature subsides the pain disappears, the tubal enlargements decrease to impalpable proportions, and if the attack is a primary one, the patient may be given a respite from operation until a recurrent attack supervenes Even under these recurrent conditions the conservative policy is again pursued until subsidence takes place a second time when an abdominal operation is advised, with a view to treating existing conditions to the best possible advantage Usually both tubes are removed and the ovaries are conserved (*b*) If, under the conservative plan the symptoms do not abate and the tube continues to enlarge vaginal drainage is instituted, either by direct incision into the culdesac or through the guidance of an abdominal incision

In the purulent lesions of the tube, all operative procedures are attended with a higher mortality and a greater morbidity, whereas under a conservative waiting treatment a patient will seldom die during an acute infection In all hazardous cases the increasing severity of the symptoms and the enlargement of pelvic masses give ample warning and permit of a simple drainage operation that will tide the patient over the danger Conservative operative procedures instituted with a view to restoring a closed fallopian tube seldom restore fecundity The safer policy usually is to remove the tubes by a wedge-shaped cornual excision in all doubtful cases, thus disregarding any attempt at restoration of fecundity Hysterosalpingo-oophorectomy in sexually mature women, the subjects of chronic infections of the uterus and adnexa, is followed by a lower mortality and a greater certainty of restoration to health than are possible after conservative operations Conservative operations employed with a view to preserving ovarian tissue should be limited chiefly to women under 30 years of age The routine drainage of pus tubes through an abdominal incision is an unsatisfactory procedure from every standpoint, and should not be resorted to if it can possibly be avoided

119 **Forearm Fractures End-Results**—Using the end-results in this series of 100 cases as the standard, Whipple and St John are convinced that open reduction for fracture of both bones of the forearm in children is unnecessary Reduction should be done at the earliest possible time To "wait for the swelling to go down" is bad surgical practice because it is ignoring a cardinal principle of the repair of wounds in bone as well as in soft parts Fluoroscopic examination should be used to determine the necessity for reduction and to insure the best reduction with the least trauma. Reduction and immobilization should be done with the patient under general anesthesia Immobilization should prevent rotation of the forearm The position of midpronation and midsupination is entirely satisfactory and comfortable except in fractures of the upper third, where full supination with the elbow in flexion is advisable Early, gentle massage and active motions are advocated, but should be performed under the direct supervision of the surgeon Forced passive motions, which cause the patient pain, are strongly condemned Practically all cases of fractures of both bones of the forearm in children (uncomplicated by extensive trauma due to compound fractures and resultant infection) will have very satisfactory results, anatomically and functionally, with conservative treatment.

Tennessee State Medical Association Journal, Nashville

June X, No 2

126 *Syphilis and Internal Medicine J S McLester, Birmingham, Ala —p 51
127 Simplified Artificial Feeding J M Lee, Nashville —p 58
128 Management of Breast Feeding O W Hill, Knoxville —p 62
129 Patent Foods O H Wilson, Nashville —p 67
130 Treatment of Trachoma with Bulgarian Bacillus Culture J P Crawford, Nashville —p 71
131 Inflammation of Conjunctiva Resembling Trachoma C J Broyles Johnson City —p 73

126 Abstracted in The Journal, April 28, 1917, p 1287

FOREIGN

Titles marked with an asterisk (*) are abstracted below Single case reports and trials of new drugs are usually omitted

British Medical Journal, London

June 9 I No 2945

1 *Status Lymphaticus from Clinical Standpoint H C Cameron —p 753
2 Case of Obstruction of Ureter by Abnormal Renal Vessel R P Rowlands —p 755
3 Three Cases of Ureteral Obstruction G S Gordon —p 758
4 Sanatorium Roll of Honor N D Bardswell —p 759
5 Pathology of Barcoo Rot (Veld Sore?) C J Martin —p 761
6 Simple Device for Growth of Anaerobes on Plates H Henry —p 762
7 Melena and Hematemesis Neonatorum B Solomons —p 763
8 Strangulation Following Reduction (Left Inguinal Hernia), Laparotomy, Recovery G A Harrison —p 763

June 16, No 2946

9 *Development of British Surgery in Hospitals on Lines of Communication in France G H Makins —p 789
10 *Some Anaerobes Found in Wounds and Their Mode of Action in Tissues H Henry —p 806

1 **Status Lymphaticus from Clinical Standpoint**—It is suggested by Cameron that the lymphoid overgrowth so commonly found postmortem in children is no more than an enlargement from the irritation of chronic catarrh in the corresponding mucous membranes Such children during life show evidence of faulty nutrition or infection of all epithelial structures, hair, skin, teeth, conjunctiva and the mucous membranes of respiratory and intestinal tracts There is usually present a characteristic wateriness of the tissues, which is dependent to some extent on excessive carbohydrate feeding, and which is the main cause of the vulnerability to infection. Local treatment of the catarrhs alone is likely to be inefficacious, and must be accompanied by a systematic attempt to achieve dehydration and improve the nutrition of the tissues The status catarrhalis in the sense defined is a predisposing cause of rheumatism and tubercle, and carries with it a liability to sudden death at the onset of virulent infections, such as pneumococcal infections, measles or diphtheria

9 **British Surgery on Lines of Communication**—Speaking of wounds of the joints, Makins says, that the experience gained in recent previous wars regarding the treatment of wounds of the joints has proved of small avail in the present campaign, because it was obtained almost entirely from observation of the lesions produced by rifle bullets, which had proved themselves of minor gravity and capable of healing spontaneously with good results when subjected to simple treatment founded on the sovereign principle of rest The problem of dealing with grossly infected joints, often enclosing a septic irregular fragment of shell and dirty clothing perhaps further complicated by extensive fractures of the cancellous articular extremities of the bones, was therefore practically a new one to the surgeons engaged Some definite facts have emerged from the first flood of difficulties encountered, and these may be shortly summarized as follows 1 The wound of the soft parts clothing the joints is vastly more difficult to deal with than the articular cavity itself, and demands the most scrupulous care on the part of the surgeon 2 The synovial capsule itself is capable of dealing unaided with an infection often of a really serious grade. 3 A strong tendency exists for an infection to localize itself, and the remaining portion of the capsule may remain free 4 Drainage in the sense of the insertion of large tubes left in position for days or more is not only useless but also harmful 5 That a gunshot wound of a joint cannot be dealt with too early, and with proper treatment forms one of the best subject wounds for primary suture 6 That following the primary surgical intervention the main principle to be observed is that of complete rest gained by immobilization and extension

General appreciation of these facts has resulted in the conclusion that a large majority of the joint injuries should be subjected to their chief active surgical procedure in the hospitals of the advanced lines, and hence the general hospitals at the present time receive only cases well on the road to recovery, or such as present the more difficult problem of dealing with established infection and suppuration

10 **Anaerobes Found in Wounds**—The pathologic processes in an infected wound, Henry says, are characterized by two main features—the production of gas and the death of tissue Each group of anaerobes has its share in these processes, and the successive stages by which an anaerobe infection develops may be thus summarized 1 The initial trauma in determining the death of tissue establishes a focus for growth This is characterized by the latent period, which precedes any obvious clinical signs of anaerobic infection 2 The first active phase of anaerobic infection consists in the development of the rapidly growing saccharolytic organisms, of which *B welchii* is the chief It is because of the richness of muscle in fermentable carbohydrate that this tissue provides such favorable conditions for the growth of organisms of the saccharolytic type Their development results in the production of acid and gas The gas accumulates first in the muscle and reaches the subcutaneous tissues by escape from the muscle The pressure produced by gas and also by inflammatory edema fluid leads to an anemic condition in the tissues surrounding a wound, and this change initiates the second active period of anaerobic invasion The muscle in the saccharolytic period is of a brick red color 3 The second phase of anaerobic infection in a wound consists in active proteolytic digestion This is characterized by death and digestion of the tissues The process is accompanied by the formation of sulphuretted hydrogen and of volatile substances, which give the penetrating putrefactive odor so typical of the

later stages of infection The previously red muscle becomes soft and different It may be stained black by a sulphid of iron formed by the interaction of sulphuretted hydrogen with the iron released from broken down hemoglobin The toxemia which develops at this period results from the absorption of toxic substances produced in the breaking down of the protein molecule and cannot be attributed to the acid which is formed in the breaking down of the carbohydrate molecule 4 The final phase is that of successful bacterial invasion of the blood stream It occurs in most cases just at, or immediately preceding the death of the individual

Indian Medical Gazette, Calcutta

May III No 5

11 Gunshot Wounds in Bengal Stationary Hospital Amara 1915 1916 A H Nott—p 154
12 Uncinariasis and the War Loan C Lane—p 161
13 Uncinariasis and Hematinics Report of Case D Perera—p 164

Journal of Tropical Medicine and Hygiene, London

June 1 XX No 11

14 Keratodermia Punctata A J Chalmers and A Kamar—p 121

Lancet, London

June 9 I No 4893

15 *Digitalis in Auricular Fibrillation A R Cushny—p 865
16 Treatment of Some Common War Neuroses F D Adrian and L R Yealland—p 867
17 Chylohemothorax from Wounds Involving Thoracic Duct T R Elliott and H Henry—p 872
18 Menace of Morphin to China W Lien Teh—p 874
19 Experimental Production of Tuberculous Peritonitis in Guinea Pigs Previously Exposed to Roentgen Rays J J McGrath—p 875
20 Operation for Loose Semilunar Cartilage R P Rowlands—p 877
21 Three Cases of Septic Infection Due to Otitis Media W Wilson and J W Barrett—p 878
22 Cases of Ligature of Common Carotid Artery J J M Shaw—p 879
23 Double Dislocation of Jaw Simulating Fracture of Skull E C Hare and S J Cole—p 880
24 Case of Ulnar Paralysis Ulnar Median Anastomosis Recovery J K Haworth—p 880

June 16 No 4894

25 Paratyphoid Infection C H Miller—p 901
26 Amputations Considered from Artificial Limb Point of View T Openshaw—p 905
27 Neurasthenia in Soldiers of Home Forces F W Burton Fanning—p 907
28 *Treatment of Neuritis H Sainsbury—p 911
29 Freud s Psychology of Unconscious W H R Rivers—p 912
30 Salvarsan and Intramin with Reflections on Chemotherapy J E. R McDonagh—p 914

15 **Digitalis in Auricular Fibrillation**—In the account Cushny gives of the action of digitalis in auricular fibrillation the effective action is the blocking of impulses from the auricle Another result of digitalis on the animal heart is the increase in the strength of contraction Whether this plays any part in the improved efficiency of the heart cannot be answered at present as one has no means of measuring accurately the contraction of the human heart Cushny says that undoubtedly the movement is stronger but this may be due to the slower beat which allows of a better recovery in the period of rest. In the perfused animal heart the systolic increase occurs at least as soon as the lessened conduction and this seems evidence in favor of the improved circulation in patients also depending in part on the increase of systole But the argument Cushny admits is not convincing, since in perfusion experiments the dose of digitalis is necessarily larger than that used in man in order to bring on the action within the time limits of an experiment

28 **Treatment of Neuritis**—The treatment employed by Sainsbury was recommended to him by Dr Hugh Wingfield It consists in the direct application of the strong hydrochloric acid of the B P in common parlance fuming hydrochloric acid to the skin, along the line of the inflamed and painful nerve The acid in question contains 31 79 per cent of gaseous hydrochloric acid and has a specific gravity of 1 160, this acid is capable of safe application to the bare skin The modus operandi is first to mark out the line of the nerve pain and tenderness as it happens to present itself in the individual In general it has been Sainsbury's practice to carry a broad line of application, some 1½ inches across, straight down the back of the thigh from the gluteal fold to the popliteal space, another application of like breadth for about 3 inches behind the head of the fibula along the oblique course of the external popliteal nerve at this spot, lastly, for some 5 to 6 inches behind the external malleolus directly downward, and below the malleolus obliquely on to the dorsum of the foot The extent of the tenderness will guide more or less as to the extent of the application A wad of cottonwool firmly compressed into a knob of the size of the knuckle of the middle finger is used to suck up the acid, of which about half a dram to a dram will be required The charged wad grasped by the finger and thumb (previously petrolatumed) is then carried gently along the line of application above described The degree of firmness may be increased subsequently if necessary, and the part may be painted two or three times at one sitting if the skin bears the acid well, the first application should be light and single in order to gage the sensitiveness of the part and if the integument happens to be thin and delicate it should receive correspondingly light treatment A considerable smarting is sometimes complained of, in other cases little more than a tingling or sense of mild heat is felt After the application a light covering may be thrown over the part till the skin is dry The smarting soon passes off and the slight redness induced disappears also no dressing is required Rarely, in delicate skins is a papular rash excited, it should be allowed to subside before reapplication of the acid Blistering has not been observed The treatment may be repeated twice a week if need be perhaps oftener, it should be continued so long as the pain and tenderness continue Massage may with advantage supplement the treatment and particularly if there has been obvious wasting

Archives Mens d'Obstétrique et de Gynécologie, Paris

January March VI No 1 3 pp 1 96

31 *Disease of Ovaries or Tubes Complicating Pregnancy A Brindeau—p 1
32 *Radiotherapy of Uterine Cancer S Recasens (Madrid)—p 34
33 Compulsory Notification of Abortions L. Tissier—p 56
34 *Influenza in 1916 from Obstetrical Standpoint F Chome—p 66

31 **Salpingo-Ovaritis Complicating Pregnancy**—Brindeau has found records of ninety-three cases of this kind, and he thinks they are more common than this but are sometimes overlooked He has encountered twelve such cases himself, which he describes in detail and tabulates the details of the other ninety-three Old salpingitis and ovaritis may not prevent conception, and if long extinct they may not give trouble during pregnancy But sometimes they are responsible for adhesions pains displacement of the uterus, torsion of the tubes or extra-uterine pregnancy If there is a spark still alive in them they may entail septic trouble This occurs early in pregnancy in about 31 per cent of the cases, in the others usually not until the close of the pregnancy or in the puerperium Abortion and delivery are peculiarly liable to set the infectious mechanism in action The peritonitis is an actual perforation peritonitis in such cases Treatment can be only surgical and the sooner the better as the only means to save the mother and allow the pregnancy to continue In the forty-four cases tabulated, 86 per cent of the women were saved by the operation in a parallel series without operation only 38 per cent survived The operative measures included five colpotomies with 60 per cent recoveries, ten salpingectomies with 90 per cent recoveries, four hysterectomies with 50 per cent recoveries, eleven bilateral castrations and five with appendicectomy plus salpingectomy with 100 per cent. recoveries

32 **Radiotherapy for Uterine Cancer**—Recasens writes from Madrid to extol the advantages of combined radiotherapy of cancer of the uterine cervix. He has applied it in 200 cases during the last three years, all his experience showing that the cancer cells are so peculiarly sensitive to radio-active substances that 70 per cent. of his inoperable cases were cured and 100 per cent of the operable The interval since in the inoperable cases has been over two years in 27 (out of 47), and over one year in 45 out of 79 For cancer of the body

of the uterus, operative removal is preferable when the woman is not fat. In the fat women we can count on curing 50 per cent by the combined radiotherapy Various combinations were tried but the easiest and most effectual was to apply the radioactive substance for not longer than twenty-four hours at first, at eight day intervals, gradually shortening the exposure and lengthening the intervals to two or three weeks Roentgen exposures are given with it to act on the deeper tissues and lymphatics which escape the influence of the radioactive substance He uses aluminum filters, 1 5 mm thick, at first and later 7 or 8 mm thick, wrapped in gauze or rubber When the doses were too large, the filtration inadequate, or the intervals too short, during his early tentative experiences, necrotic processes were observed resembling a Roentgen-ray burn, and not healing for four or five months It is important to distinguish this trophic trouble from the cancerous process as the former demands suspension and the other, continuation of the exposures

34 **Influenza from the Obstetric Standpoint.**—Chome comments on the gravity of influenza when it occurs in epidemic or endemic form in a maternity In many cases it runs a septicemic course, with secondary localization in the peritoneum At the Tarnier maternity last year eighteen parturients developed influenza and six of them died In two cases the death seemed to be due to pulmonary complications, in the other four to septicemia with peritonitis

Bulletin de l'Académie de Médecine, Paris

May 22, LXXVII No 21, pp 655 682

35 *Danger of Malaria and Yellow Fever Getting a Foothold in France R Blanchard—p 657
36 *Abortive Treatment of Erysipelas Capitan—p 669
37 Apparatus for Endo Urethral Diathermia E Roucayrol—p 673
38 *The Pupil Reactions (Les lois de l'isocorie et de l'anisocorie normales Corollaire et variations pathologiques) A Tournay—p 680

35 **Danger of Malaria and Yellow Fever in France**—Blanchard states that the intermediate mosquito hosts of these diseases are found in southern France, and that a committee has been organized to determine which sections are free from them, so that the convalescents can be directed there He remarks that the English troops in Macedonia did not suffer from malaria by any means to the extent of the French troops The British officers considered the Macedonia campaign a "medical war," and gave the medical officers full charge of it, with highly favorable results for the health of the troops "Would that it had been the same in the French army!" he exclaims

36 **Abortive Treatment of Erysipelas**—Capitan found all measures ineffectual until he began to give a subcutaneous injection every day of 50 c c of antistreptococcus serum In very severe cases he gave an injection morning and evening These doses were kept up for two, three or four days, in one case for five days In another case very severe erysipelas of the face, with much swelling, disappeared within forty-eight hours, after two injections of 60 c c A quinin tonic is taken internally at the same time There were no accidents from the serotherapy but quite frequently there was a serum rash, with pains in the joints, sometimes intense These by-effects developed about five days after the last injection of serum He makes a point of injecting 2 c c of the serum four hours before the main injection, to ward off any danger of anaphylaxis

38 **Laws of Pupil Reaction**—Tournay has found that the pupils react alike in normal conditions when the eyes look forward, but when looking to one side the pupil on that side becomes larger than the other in a few seconds, while the other contracts

Paris Médical

May 26, VII No 21, pp 421 436

39 Official Welfare Work for Children in Belgium R van Roy—p 431
40 The Normal Upper Radio Pronator Reflex E Landau—p 426
41 *The Cough with Heart Disease, Especially Hyposystole or Asystole. A Blind and R Ricard—p 428
42 Symptoms from Injury of the Neck Back of the Parotid Gland (Syndrome de l'espace rétro parotidien posterieur) M Villaret—p 430
43 Roentgen Localization and Extraction of Projectiles B de Laborie—p 431
44 *Postoperative Albuminuria A Satre—p 434
45 Activation of Cobra Venom by Serum of Nephritics. G Blechman—p 434
46 Albuminuria in Incipient Tuberculosis G Blechman—p 435

41 **The Cardiac Cough**—Blind and Ricard warn that the cough with heart disease must not be mistaken for incipient tuberculosis There is no doubt that cases of this kind have sometimes been sent by mistake to sanatoriums for the tuberculous, and the subsidence of the cough under repose and tonics has improved the statistics from the institution There is little or no expectoration with the incessant spasmodic cough in question, it is most frequent at night, as a rule, and is not soothed by cough medicines The cough is aggravated by sodium benzoate, and is favorably influenced only by cupping, a milk diet, theobromin or digitalis It may appear in the young with valvular disease before there is any dyspnea, tachycardia or arrhythmia This cough develops more frequently with mitral than with aortic valvular trouble, especially those of rheumatic origin The cause is a localized subacute edema of the lung, and this subsides under heart tonics

44 **Postoperative Albuminuria**—Satre found albuminuria most constant after operations on the abdominal, genital and urinary organs In case of preexisting kidney lesions rapid operating is necessary He declares that the general anesthesia kept up for an hour or longer might prove fatal just as well without any operation, other things being equal He noticed albuminuria after accidental traumatism, showing that the shock is the main factor rather than the anesthetic in postoperative albuminuria In four instances he witnessed the subsidence of preexisting albuminuria after an operation

Presse Médicale, Paris

May 17 XXV, No 27 pp 273 280

47 *Overlooked Inherited Syphilis R Sabouraud—p 273
48 *Diphtheria Antitoxin in Powder Form for Local Treatment of Bacilli Carriers R Benard—p 275
49 Congenital Stricture of the Urethra Artus—p 276
50 Geometric Chart for Direct Localization of Projectiles H Deverre.—p 277

May 21 No 28, pp 281 296

51 *Fate of Autoplastic Bone Grafts L Berard—p 281
52 *Operative Treatment of Varicocele G Lerda—p 284
53 The Pulmonary Sequels of Pneumonia M Letulle—p 288
54 *Disinfection of Wounds by Electrolysis of Circulating Therapeutic Fluid under Continuous Aspiration G Chick and H Miniot.—p 295
55 General Anesthesia with Ethyl Chlorid in War Surgery M Boureau—p 296

47 **Overlooked Inherited Syphilis**—Sabouraud classifies in five groups the children with inherited syphilis The first three groups are familiar to all, but the others are constantly overlooked, and yet they comprise more children than all the others combined He has encountered families with many children and no miscarriages in which every child was stamped with the inherited taint, even when the father had been long and thoroughly treated He makes a practice of applying the Wassermann test in all dubious affections in children, and states that those who do this will be appalled at the findings Human beings naturally are harmoniously proportioned, and when this is not the case, some inherited taint of one kind or another is responsible All those who visibly fail to conform to this law of harmonious development are suspicious, and the suspicion of syphilis is confirmed by the discovery of supernumerary cusps on the inner side of the upper first large molars—the tubercle of Carabelli All the dental anomalies of syphilis had been described by dentists long before their connection with syphilis was recognized by practitioners Children with these extra cusps are exceptionally subject to skin diseases, spina venosa, etc, the inherited taint opening the portals to affections of all kinds The Wassermann test shows that among the old syphilitics who consider themselves cured, there are now about thirty who are plainly not cured to every one that is actually cured Syphilitics should not be allowed to marry until they have had a negative Wassermann reaction for two or three years

after treatment has been suspended Otherwise they will beget children whose teeth will show the inherited taint which will render them easy victims to any diseases they may chance to encounter A third or half of those children who are repeatedly under the doctor's care have inherited syphilis

48 **Treatment of Diphtheria Bacilli Carriers**—Benard insufflates antitoxin in the form of a powder and states that this has rapidly freed the throat of the diphtheria bacilli, even in old carriers It seems the easiest, simplest and most effectual method known to date None of the children with diphtheria became carriers in the fifteen cases thus treated and four convalescent adult carriers and fourteen healthy carriers were also cured in a short time The city of Nevers had two school epidemics of diphtheria last year and Benard organized a special class of the carriers alone This carrier school opened with twenty-two scholars but in two weeks it had to be closed as under the insufflation treatment no further diphtheria bacilli could be found One child had shown diphtheria bacilli in smears taken at eleven different examinations in the course of several months Twelve days after the insufflation treatment was begun the second of two negative examinations permitted his discharge The formula used was antitoxin powder 10 gm , 0 9 gm novarsenobenzol, 1 gm pulverized benzoin and 100 gm bismuth carbonate The powder is blown in three or four times a day, twice through each nostril and into the throat

51 **Fate of Bone Grafts**—Berard reproduces the roentgenograms taken at intervals through several years in two cases in which a graft 10 or 11 cm long had been implanted after fracture of the radius or tibia The graft was taken from the fibula on the other side In the radius case the tissues were healthy and the graft freed from periosteum healed perfectly in place, and the limb is strong The tibia in the other case had been fractured four times and conditions were pathologic The graft with its periosteum healed in place and the leg was used normally for three years Evidences of dystrophy became apparent then and the graft was absorbed with pathologic fracture. The ultimate outcome of autoplastic bone grafts with or without periosteum thus seems to depend on the healthy condition of the parts receiving the graft

52. **Varicocele**—Lerda comments on the necessity for individualizing operative treatment for varicocele according to the conditions encountered Conservative scrotectomy taking up folds in the vaginalis is sufficient in cases in which the nervous troubles predominate or the scrotum is stretched and flabby without a tendency to hernia In all other cases he advises operating through the inguinal canal and he gives an illustrated description of the different technics that may be applied When there are angiosclerotic lesions and lesions of the testicle with atrophy of the cremaster he applies the Nahrat-Nilson method When the dilatation of the veins is more pronounced than the sclerosis and the fibromuscular layers seem strong he applies the Carta-Mori method, that is he slits the cremaster fascia into two side strips and shortens it by invaginating the upper portion into the lower, fastening it with a few stitches to the lesser oblique and the transverse muscles When the varicocele is accompanied with hydrocele as a manifestation of inflammatory reaction on the part of the vaginalis or cysts showing lesions in the epididymis he applies his modification of Parona's method The testicle is drawn out a long rectangular flap with base below is cut in the vaginalis and the vaginalis is turned back and drawn up the flap serving as a long handle reaching to the inguinal ring to which it is sutured This suspends the testicle firmly and easily at the desired height.

54 **Electrolysis in Treatment of Wounds**—The disadvantage of therapeutic electrolysis in treatment of wounds has always been that the electrolyzed fluid grows constantly more caustic, and hence acquires a corrosive action in time This can be obviated by keeping up a constant flow of the fluid through the wound aspirating out the irrigating fluid and not allowing it to stand in the wound This preliminary communication from Tuffier's clinic states that experimental and clinical experiences with this method have been very favorable The antiseptic is thus being constantly generated fresh in the depths of the infected cavity just where it is needed.

Correspondenz-Blatt für Schweizer Aerzte, Basel

May 26 XLVII No 21 pp 657 688

56 *Improvised Orthopedic Devices for the Wounded O A Hug —p 657
57 *Experiences with Mercury Vapor Quartz Lamp (Kunstliche Hohensonne) P Sokolow —p 673

June 2 No 22 pp 689 720

58 *Therapeutic Induced Pneumothorax in Treatment of Pulmonary Tuberculosis in the Pregnant Van Voornveld —p 689
59 The Sugar Content of the Blood the Criterion for Renal Diabetes H Ryser —p 703

56 **Improvised Orthopedic Devices**—Hug gives twenty-two half page pictures showing the way in which contractures ankylosis traumatic talipes and other deformities can be corrected by a simple rope pulley and weight device applying traction along the lines where it is specially needed In all the applications of this principle the limb above the point must be held immovable, buckled with a broad strap to a small table for example At night the limb should be partially immobilized in overcorrection

57 **Mercury Vapor Quartz Light in Therapeutics**—Sokolow writes from Zurich what he thinks is the three hundred and first article that has been published on this subject He has used this form of phototherapy during the last fourteen months in sixty-seven cases of internal, skin or nervous affections and reports 'right good results" It failed in certain cases so that it must be regarded he says as only one link in the chain of therapeutic factors at our disposal

58 **Pneumothorax Treatment of Tuberculosis in the Pregnant**—Voornveld expatiates on the advantages of inducing pneumothorax when a woman with active pulmonary tuberculosis becomes pregnant This not only helps the woman herself but by its damming up of the toxins generated by the tubercle bacilli it permits the fetus to develop normally One of Forlanini's early cases was a woman who became pregnant after she had been bearing for eighteen months an induced pneumothorax The pneumothorax was maintained through the pregnancy and lactation period which all passed as under normal conditions Combiaso in 1914 and Real in 1913 reported somewhat similar cases Voornveld while physician in chief of the Turban sanatorium at Davos had a patient with severe and extensive left pulmonary tuberculosis, and six months pregnant. Tubercle bacilli and elastic fibers were numerous in the sputum, and the subfebrile temperature testified to the active process and to the grave prognosis unless the pregnancy was interrupted or an artificial pneumothorax induced He decided on the latter and the sputum soon lost the elastic fibers and bacilli The pregnancy, delivery and lactation proceeded as under normal conditions In order to secure this inactivation of the tuberculous process in the lung he took special pains to determine and maintain the optimal conditions in respect to the amount of pressure and the size of the pneumothorax. As delivery approached he kept up this optimal condition by repeated small reinjections and as the uterus was evacuated he increased the pneumothorax to correspond not giving the compressed lung any chance to expand The danger for the lung from the straining during labor was materially mitigated by the interposition of the elastic pneumothorax All this required close supervision of the patient but it saved the child and possibly the mother might not have come through otherwise He regards this systematic pneumothorax treatment in proper cases as opening new perspectives for treatment of tuberculous pregnant women

Gazzetta degli Ospedali e delle Cliniche, Milan

April 26 XXXVIII No 33 pp 513 528

60 *Lumbar Hernia G Campora —p 513

April 29 No 34 pp 529 544

61 Medicated Animal Charcoal in Dyspepsia (Lo zimantrax nella terapia medica) C B Farmachidis —p 529

May 3 No 35 pp 545 552

62 *Recurring Rachitis G Radice —p 545
63 True Spasm of the Pylorus G Ceresole —p 549

60 **Lumbar Hernia**—Campora describes a case of a large reducible hernia in the lumbar region in a man of 61 At the operation the hernial sac was found empty and the orifice was closed by suturing the edges of the muscles together

Campora tabulates the details of sixty-six similar cases he has found on record since 1731 In three of the cases the hernia was bilateral, in one the kidney was involved in the hernia In several cases the hernia was mistaken for an abscess, in a number the hernia became incarcerated Campora has made a special study on cadavers of conditions favoring lumbar hernia Palpation of a lumbar hernia shows the increase of the tumor during coughing There may be sharp pain during work, or no pain, and the tumefaction usually subsides as the subject reclines on the other side Lumbar hernia shows little tendency to become incarcerated, but it may prove important from the standpoint of industrial accidents

62 **Recurring Rachitis**—Radice's patient was a boy of 17 with a few skeletal traces of infantile rachitis He had twelve brothers and all were reputed to be in good health At the age of 16, while lifting a weight, during his factory work, he had sudden pain in his knees, which grew progressively worse, accompanied by tremor and exaggeration of the reflexes and muscular excitability in general By exclusion Radice ascribes the disturbances to an upset in the enocrinic system due to the flaring up of his rachitis

Pediatria, Naples

May, XXV, No 5, pp 257 320

64 *Cerebrospinal Meningitis F Randone—p 257
65 Pseudohernia from Involvement of Abdominal Muscles in Paralysis Following Poliomyelitis U Provinciali—p 270
66 *Pituitary Deficiency in Connection with Adenoids S Citelli and P Caliceti—p 278
67 Present Status of Idiopathic Splenomegaly Gaucher's Disease R Vaglio—p 290

64 **Cerebrospinal Meningitis in Southern Italian City**—Randone refers to Syracuse where there were twenty-two cases recorded in the last two years In some cases there were several relapses, with final recovery, but in two the ventricles became involved and the condition was deemed too grave for trephining The sick were all children from 10 months to 13 years old, with the exception of the father of two of the sick children He had the disease in a severe form, with relapses In some exceptional cases the onset was of the septicemic type, the meningeal symptoms not appearing at first When meningitis is epidemic, lumbar puncture should be done whenever a child is sick with an obscure syndrome An eruption resembling measles developed in one child during convalescence When the disease was found to be prevailing, the authorities provided a special hospital for it, and rapid recovery was the rule, only one child in the hospital dying In every case in which serotherapy was applied early and in adequate doses, at home or in the hospital, recovery was prompt and complete The only mishaps three deaths, deafness in one case and squint in another, were in cases that had progressed for some time before a physician saw the child Randone mentions that an antiserum of Italian origin seemed most effectual, and he suggests that antiserums should be prepared with as many strains as possible, and particularly with meningococci from a recent epidemic If those from the prevailing epidemic could be utilized, the results might be still better

66 **Adenoids Entailing Pituitary Insufficiency**—Provinciali reports three cases of the mental backwardness, weak memory, tendency to drowsiness or insomnia, and inability to concentrate the attention which, combined, form Citelli's syndrome, encountered in persons with adenoids or other affections in the nose and sphenoidal sinus The disturbances evidently involve the pituitary body in the nasal and sinus trouble The three cases described were in soldiers, all presenting feminine characteristics, actual pituitary feminism, along with Citelli's psychic syndrome as described above The three soldiers have the adenoid facies, and are decidedly mentally backward, all of which might have been prevented, it is emphasized, if the adenoids had been removed in time, and this followed, eventually, with pituitary treatment This might have restored the balance and permitted normal physical and mental development The temperature reaction in injection of pituitary extract further confirmed the assumption of pituitary deficiency The roentgenoscopic findings were normal

Policlinico, Rome

June 3, XXIV, No 23, pp 725 756

68 *Factitious Affections in Military Circles A Ascarelli—p 725 Commenced in No 22, p 697
69 *Factitious Conjunctivitis M C Francaviglia—p 735
70 *Minor Electric Signs of Sciatica V Neri—p 740
71 *Test for Detection of Simulation of Total Deafness G Bilancioni—p 743

Surgical Section, No 5, pp 193 232

72 *Solitary Cysts in the Kidneys: M Magnini—p 193 Commenced No 4, p 180
73 *Gangrene of the Gallbladder, Recovery O Cignozzi—p 213
74 *War Wounds of the Skull A Chiasserini—p 219
75 Varieties of Femoral Hernia G Serafini—p 230 To be continued

68-69 **Factitious Affections**—This number of the *Policlinico* and the one before are devoted to artificially induced lesions and affections of various kinds Among those with serious by-effects is otitis induced with caustics or boiling oil, etc. Usually only one ear is affected, and there is a history of an old chronic ear trouble In one case facial paralysis followed, in others complete destruction of the auditory canal and mastoiditis, and in two cases fatal meningitis Acute conjunctivitis induced by castor-oil seeds, has a peculiar washed-meat aspect

70 **Minor Electric Signs of Sciatica**—Neri remarks that sciatica occurs in almost epidemic form among the soldiers in this war There is scarcely a hospital anywhere without some genuine or imaginary cases of sciatica Quantitative disturbances in the response to electricity are common even in the early and mild cases of true sciatica. This is tested best on the internal popliteal nerve or the sciatic at the lower margin of the gluteus maximus, closer to the tuberosity of the ischium than to the trochanter

71 **Simulated Deafness**—Simulation of deafmutism was detected by Sicard from the man's misspelling of words according to the sound Bilancioni has encountered some cases of factitious total deafness which resisted all tests and experiments until he succeeded in breaking the volitional inhibition of the malingerer by general anesthesia Two or three whiffs of ethyl chlorid answered the purpose. This brief and harmless narcosis proved effectual in every instance

72 **Solitary Cyst in the Kidney**—Magnini found on exposing the kidney that there were two cysts, both on the convex side, one the size of an egg, the other as large as one's fist The kidney elsewhere seemed normal, and, instead of the contemplated nephrectomy, he merely evacuated and excised the cysts and sutured together with catgut the lips of each cavity Neither of the cysts reached to the pelvis The operation concluded with nephropexy The patient was a woman of 45 who for two years had had attacks of severe pain in the right kidney region, spreading to the small pelvis, and lasting for about four hours There was also discomfort and a dull pain in the lumbar regions, and during the last six months a tumor could be palpated in the right hypochondrium, but there was no pyuria or polyuria The diagnosis had been hydronephrosis The histologic findings are illustrated and compared with similar cases on record The data indicate that solitary cysts differ from polycystic kidneys in every respect. The cause is some circumscribed inflammatory process at some part in the kidney parenchyma, not merely a mechanical injury, and the urine may be normal throughout

73 **Gangrene of the Gallbladder**—The man of 39 had had two attacks of gallstone colic during the last seven years The present attack, with vomiting and febrile onset, lasted forty days before the gallbladder was removed It was gangrenous throughout and contained 205 gallstones, but the absence of adhesions and the other findings indicated that the inflammatory process was of comparatively recent date The gallbladder was completely covered with omentum, this had prevented the escape of gallstones from the gallbladder

74 **Skull Wounds**—Chiasserini analyzes his experience with twenty cases of shell wounds of skull and brain They emphasize the importance of early and thorough operative treatment, not later than five, eight or ten hours at farthest, if complications are to be warded off

Riforma Medica, Naples

May 19 XXXVIII No 20 pp 533 560

76 Traumatic Factitious Arthritis of the Knee A Mori—p 533 Commenced in No 18 p 480
-- Ambrine Not a Specific and Not a Drug Merely a Protecting Sheath G Fabiani—p 542
78 *The Cardiopathology of War L. Ferrannini—p 545
79 Five Day Fever U Cabbi—p 546.

76 **Factitious Arthritis**—Mori warns that at first it is scarcely possible to distinguish between a true traumatic arthritis and the artificially induced injury But the course of the case soon shows whether the trouble involves the joint proper or merely the soft parts

78 **Present Status of War Cardiopathology**—Ferrannini quotes some recent writers on the question whether recruits with heart disease can be accepted Weil Josue and Kramer insist that when the functional capacity of the heart is reduced even though the heart trouble is excellently compensated yet the compensation may break down Compensation is more likely to break during long marches than under emotional stress etc Tobacco alcohol and acute infections are other potent factors Osler further calls attention to the greater probability in such cases of some slight infection settling on the heart and starting an infectious endocarditis Weil advocates eliciting the oculocardiac reflex in examining the applicant, as this arrests inorganic murmurs while it renders the organic more prominent. Goodhart urges that all dubious cases should be referred to heart specialists Parkinson found that over 50 per cent. of ninety soldiers sent back from the front on account of cardiac insufficiency had shown signs of it before enrollment. A number were great smokers, a few had been hard drinkers, and a few had been through exceptionally exhausting fatigue. In only five had the first symptoms developed after an acute infection In 30 per cent there was valvular trouble, recognized before enrollment in all but three. He comments on the frequency of latent heart disease among civilians, result of some infection early in life, saying that it might remain latent indefinitely in civilian life but it flares up under the stress of military service. Gunson regards dysentery as responsible for many cases of "soldiers heart' Cluzet has recently reported interesting studies of electrocardiography of the wounded

Brazil-Medico, Rio de Janeiro

April 28 XXXI No 17 pp 139 148

80 Injurious Effects of Football under the Age of 18 H. Autran—p 139
81 Fatal Case of Intestinal Trichocephalosis. A A da Matta—p 141.

81 **Trichocephalosis.**—The necropsy of the child of 4 showed the ascending and descending colon crowded with specimens of trichocephalus 123 in all, over 57 per cent. were females The anemia had been profound and the eggs of the parasites numerous in the stools

Cronica Medica, Lima

June XXXIV No 648 pp 189 220

82 *Sarcoma of Fallopian Tube. E. Bello and M Castaneda.—p 189
83 *Injection of Phenol in Treatment of Hemorrhoids E. Escomel—p 192
84 Factitious Affections from Medicolegal Standpoint. (Simulacion de las enfermedades) G F Davilla.—p 200
85 *Mistakes in Diagnosis of Abscess in the Liver E Odriozola.—p 204
86 Posterior Vertex Presentation Is Unphysiologic. E. F Odriozola.—p 211

82 **Sarcoma in Fallopian Tube**—The octipara of 40 noticed a small tumor in the lower abdomen in 1915 It could be easily moved around and caused no disturbance for a year Then profuse and repeated uterine hemorrhages developed and the tumor increased progressively in size. Before consenting to an operation she waited until the anemia and debility were extreme coagulation time seven minutes She was given 500 c.c. saline daily by the drip method with injection of cacodylate and epinephrin and calcium chlorid by the mouth The tumor proved to be a round-cell sarcoma in the tube which measured 19.5 cm. long by 6 cm wide Smooth recovery

83 **Phenol Treatment of Hemorrhoids.**—Escomel gives an illustration of the three instruments he uses in injecting a 20 per cent solution of phenol in equal parts neutral glycerin and distilled water (The method was described recently in these columns, May 19, 1917, p 1514) He lauds this "medical intervention" as most excellent, superior to all other bloodless methods, while it can be done by any physician From two to six drops of the phenol solution are injected into each hemorrhoid

85 **Mistake in Diagnosis of Liver Abscess**—In Odriozola's case a man of 27 presented symptoms which he diagnosed as indicating a cancer of the liver while necropsy revealed merely a large abscess in the posterior portion of the liver Among the lessons taught by this blunder are that suppuration in the liver must be excluded in every case of enlargement of the organ with fever before any other trouble is even thought of Abscesses in the convex aspect of the liver are most frequently mistaken for other affections There may not be the slightest trace of jaundice, and gastrointestinal disturbance is by no means common Pain in the shoulder occurs early and is acute and persistent, much more than with any other affection Puncture from the front and side are negative and when this is the case puncture from the rear is called for cautiously avoiding the course of the inferior vena cava The blood picture is not characteristic, but complications in pleura and lung are most instructive On suspicion of an abscess operative treatment is indispensable Rapid anemia may accompany a simple abscess, as in this case The condition was so grave when first seen that operative treatment was almost out of the question even if the diagnosis had been correct

Semana Medica, Buenos Aires

April 26 XXIV No 17 pp 487 510

87 Pregnancy and Delivery in a Case of Double Uterus S F M Moreno—p 487
88 Possible By Effects with Clycarsenobenzol L. Moss—p 490
89 Chapter from Autobiography E. R Coni—p 491
90 Condurango in Therapeutics S P Redondo—p 495
91 Lymphocytosis in Syphilitics. C P Mayer and A C Gourdy—p 500 Continuation
92 *The Defensive Lipoids. F M Urra—p 506.

87 **Delivery with Double Uterus**—Moreno relates that the second uterus behaved the same as the gravid uterus to a certain extent increasing in size and the cervix passing through a phase of dilatation

92 **The Defensive Lipoids**—Urra is chief of the biologic laboratory of Toledo Spain, and he has made a special study of lipoids and of cholesterol in particular The latter is found in abnormal amounts in the blood, he recalls, in all severe toxic processes as with nephritis and typhoid the highest point being reached with the turn for the better of the disease There is also an excess of cholesterol in the blood with atheroma There is much evidence to prove that cholesterol neutralizes toxins, but that once neutralized, it forms with them compounds not readily eliminated As they are unable to escape from the organism, in time they become deposited on the interior of the vessel walls thus inducing arteriosclerosis High frequency electric currents by stimulating the organic oxidations may rejuvenate the defensive ferments in the elderly He adds that, besides arteriosclerosis cataract and gallstones start with the precipitation of cholesterol This could not occur if the oxidation processes were constantly lively Once constituted treatment is problematic and difficult Hygiene and avoidance of infections is the only means known to date for warding off hypercholesterolemia with the evil effects of imperfect elimination of the cholesterol from lack of intra-organic oxidations

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

April 14 I No 15 pp 1173 1256

93 The Potassium Ion and the Automatic Work of the Heart H Zwaardemaker—p 1174
94 Case of Multiple Small Tumors of the Sweat Glands. (Syringo hamartoma multiplex) W L. L. Carol.—p 1183
95 *Uremia in Cholera W Valk and C D de Langen—p 1190
96 Narcolepsy in Young Woman G C Bolten—p 1196

95 **Uremia in Cholera.**—The retention of nitrogen in the thirty-four cases tabulated amounted to from 3.31 to 5.9 gm.

urea per liter of the blood serum in 50 per cent of the patients In ten others it ranged from 1 75 to 2.72 and in only seven was below this In another group of four cases Ambard's constant was calculated from the urine and blood The retention of nitrogen in 50 per cent was thus higher than the figures obtained even with contracted kidney The communication, which issues from the public hospital at Batavia, emphasizes that there was no intake of nitrogenous food by the cholera patients and the decline in weight from the loss of fluids and the thickening of the blood does not suffice to explain this extreme uremia There must have been formation of urea from the albumin of the body All the patients died that had this high nitrogen blood content In two dubious cases, with no vibrios to be found, the high urea content of the blood confirmed the diagnosis In one the uremia declined and recovery was anticipated and occurred In the other, two days later the retention had reached a higher figure, and death soon followed

Hospitalstidende, Copenhagen

May 30, LX, No 22, pp 521 548

97 *Alimentary Glycosuria in Rats with Hypoglycemia V Schmidt. —p 521
98 *The Consciousness during Stupor A Wimmer —p 527 Commenced in No 21, p 497

97 **Alimentary Glycosuria in Rats**—Schmidt tabulates the findings in two groups of rats One strain showed hyperglycemia to begin with, but both presented alimentary glycosuria on feeding with carbohydrates

98 **The Consciousness during Stupor**—Wimmer refers to the stupor of psychic origin, such as epileptic seizures, drunkenness, catatonia, etc. It is often surprising to find what a clear appreciation and understanding of what has been going on are displayed by persons rousing from a period of catatonia during which they lay like a lifeless statue with closed eyes He describes with much detail a case of this kind It shows that certain catatonia symptoms, when we know their psychogenesis, lose their diagnostic importance As a rule, however, the period of stupor is a blank in the memory

Hygiea, Stockholm

May 16, LXXIX, No 9 pp 417 464

99 *Gallstones and Indications for Operative Treatment. L Wolff —p 417
100 *Gangrene of the Thumb after Application of Compound Solution of Cresol S von Stapelmohr —p 438

99 **Gallstone Colic and Indications for Operative Treatment**—Wolff remarks that in the few cases of gallstone colic in his practice in which the symptoms at the first attack were so severe that operative measures were inevitable, he always found a complicating acute pancreatitis He emphasizes further that acute gallstone trouble and acute appendicitis have to be treated on different principles The first attack of cholecystitis is seldom severe, gangrenous inflammation of a previously sound gallbladder does not occur easily The temperature must be taken in the rectum, as sweating and collapse may reduce the temperature of the skin, 104 F indicates severe infection, but the latter may occur with moderate temperature The persistence of high temperature speaks for serious conditions A single chill and transient fever do not call for an operation, but recurring chills and persistent fever demand it, as also a rapid weak pulse, pronounced local muscular resistance, persistent pains and tenderness not banished by a second and third dose of morphin (0 01 gm)

He quotes a writer to the effect that on suspicion of the gangrenous form the operation must be done at once as we would rush to save a drowning man without asking whether he wanted to be saved or not The least suspicion of pus in the gallbladder should be regarded as a relative indication for an operation, with the patient's consent, as the organ thus affected rarely recuperates entirely and there is always danger of further and more serious trouble Contrary to the indications with appendicitis, castor oil is advised If this abolishes completely the painfulness of the gallbladder, this shows that the gallstone trouble is tending to a latent phase In about 80 per cent of the cases, the cholecystitis is of the serous type, and under internal treatment it may subside into a lifelong latent phase With this the fever and jaundice are transient, the pain is bearable and is relieved more or less with morphin, and the general condition is not so grave If the course turns for the worse, delay in operating is not so dangerous as with appendicitis An early operation, even with the gangrenous form, has given only 2 or 3 per cent. mortality, after perforation has occurred the mortality has been 17 per cent or more In conclusion he reiterates that internists must learn to call on the surgeon in the moderate cases so that he may be ready to intervene at the proper moment, instead of postponing this until the surgeon has to contend with excessively grave conditions

100 **Compound Solution of Cresol Gangrene**—Stapelmohr reviews the literature on carbolic (phenol) gangrene and reports a case in which the terminal phalanx of the thumb sloughed off and had to be amputated after application of a 5 per cent dilution of compound solution of cresol It had been applied by the patient herself, the thumb dressed with it for a total of twelve hours and then submerged in the solution for two hours longer, the fifth day after a cut

Ugeskrift for Læger, Copenhagen

May 10, LXXIX, No 19, pp 727 770

101 *Transient Partial Heart Block. (Forbigaaende Atrieflagren) C. Schwensen —p 727, (Forbigaaende Atrieflimren) C Schwensen —p 740
102 *Relative Economic and Physiologic Role of the Dietary in Different Classes of the Populace M V Bjørum and P Heiberg —p 744
103 *Relative Cost of Food near the Basal Minimum M V Bjørum and P Heiberg —p 748
104 *Relative Cost of Food in Towns in Denmark and Sweden. P Heiberg —p 751

101 **Transient Heart Block.**—Schwensen describes in minute detail two cases of auricular flutter of rheumatismal origin, and reviews the history of this anomaly, the diagnosis and treatment His first patient was a typical example of a slight organic disturbance in the bundle of His associated with high vagotony The latter was responsible for the extreme degree of the partial heart block The effect of digitalis and of atropin confirmed this diagnosis The patient was a iii-para of 50 She had a little dyspnea on exertion and sometimes she suddenly and briefly lost consciousness after exertion, and felt distressed afterward, with palpitations of the heart, but there was no tendency to edema

The second patient was a clerk of 24, and digitalis in small doses increased the degree of heart block and thus slowed up the ventricle beat This allowed the heart muscle a chance to rest between the contractions The diagnosis in both cases was based on the comparison of the radial pulse and the auscultation findings, the heart beat keeping time with the pulse If there had been extrasystoles, a contraction would have been heard in the long pause The diagnosis of auricular flutter would not have been positive without the electrocardiograms, fifteen are reproduced The slight organic trouble in the bundle of His-Tawara is liable to become aggravated with any intercurrent infection which renders the outlook grave

Schwensen describes further a case of auricular fibrillation occurring in a married laboring man of 32 during and after a severe attack of pneumonia followed by bilateral parotitis After a brief period of tachycardia combined with functional heart block the symptoms of auricular fibrillation developed and persisted for two weeks Then the normal auricle beat returned suddenly Treatment had been with camphor and caffein Evidently there had been no organic trouble, the fibrillation being merely a toxic phenomenon

102-104 **Cost of Dietaries According to Income**—Bjørum and Heiberg give a number of tables showing cost and calories of the food classified by the incomes They show that statistics in this line are of little value unless the income is taken into account Bread is the regulator, the poorer getting their calories from a larger proportion of bread Comparison of conditions as to calories and prices in a Swedish and a Danish town showed better conditions in the latter

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol LXIX, No 4 CHICAGO, ILLINOIS JULY 28, 1917

THE INFLUENCE OF WAR ON MEDICAL SCIENCE *

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NEW YORK

The influence of medical science on the conduct of war has been strikingly illustrated in all the great conflicts of the last two decades On the other hand, the influence of war on medical science is less frequently considered, but the present conflict seems likely to exert a far-reaching effect on American medicine

The last example of a war conducted without the aid of medical science was our own brief passage at arms with Spain Here, pestilential disease broke out in violent epidemic form in all the camps, malaria and dysentery more than decimated the troops in Cuba who were saved from annihilation by these diseases and yellow fever only by prompt removal from the danger zone I saw whole shiploads of acutely ill soldiers landed at Camp Wickoff in 1898 without any evidence of having received medical care during their voyage from Cuba The army ration in those days was provided by practical men who supplied the canned goods, which acted as acute intestinal irritants, instead of a successfully adapted nutriment Typhoid infection reached such a grade of virulence as to prove fatal in from seven to ten days, with enormous lymphoid hyperplasia resembling leukemia, and practically every line soldier who landed on Long Island from Cuba was infected with malaria or dysentery or both

Shortly afterward the Japanese conducted a much more extensive warfare with the aid of medical science, and with nearly complete elimination of infectious disease as a cause of death During the present world conflict medical control held the incidence of communicable disease to its normal ratio, until apparently in recent months when the cumulative effects of undernutrition and defective hygiene, among both armies and civilian population, have permitted unusual ravages by our old enemy the "white plague," and given an unexpected opportunity immediately embraced by the pestilential smallpox A highly significant demonstration is now being given in Europe of the decisive effect of predisposing causes in the development of infectious diseases We have always known that undernutrition favored tuberculosis, but there has never before been such overwhelming proof as is now furnished by the increase of tuberculosis in France and Germany For us the lesson to be drawn is the prime importance of nutrition as a preventive of disease Already there have been outbreaks of measles and meningitis among congregations of enlisted men in this country The seeds of poliomyelitis so widely sown last summer may find conditions favorable for an even more extensive epidemic in our camps, unless it is rigidly guarded against, or unless, as seems more likely, age is the decisive immunity factor

Thus, it is almost a truism that medical science, in its control of preventive medicine and sanitation, makes modern war possible Here, I venture to point out that our progress in this war will depend more on the success with which the medical department applies the rules of prevention, sanitation and nutrition, established in the laboratory by laboratory men, than on the cure of established disease Thousands of trained physicians will treat the sick and care for the wounded, but there will be more responsible duties in applying the rules of sanitation and preventive medicine

Suddenly, without warning, we are to be tested on the basis of the grade of knowledge the American medical profession now possesses in the field of preventive medicine and hygiene It is too late to make good existing deficiencies We must stand on past records and existing conditions

Thus, war, applying a rigid standard of utility, places first emphasis on a department of medical science which is commonly regarded as most theoretical It is also one which is among the least prominent in present schemes of medical education, and I take this opportunity of urging that greater prominence be given to this subject by the Council on Medical Education in this Association There are good departments of public health and hygiene in several American medical schools but not in many, and there is one special hygienic institution projected, but the rank and file of the American medical profession is poorly trained in this field Fortunately there are indications, in the wide experience and brilliant achievements in Cuba, Panama and the Philippines, and in the high standing of our hygienists, that American sanitary science will successfully meet the new demands thrust on it

Another influence of war on American medicine, already in effect, has been the enforced development

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* Chairman's address read before the Section on Pathology and Physiology at the Sixty Eighth Annual Session of the American Medical Association New York, June 1917

of scientific medical literature Prior to 1914, Germany held a monopoly of medical publication, both of results of research from all parts of the world and of the fruits of discussion and speculation The sudden closing of this outlet has thrown on America the task of providing the medium of scientific discussions in many departments of medicine Several new journals have already appeared, all of them of high grade, most of them from laboratory circles Great importance for American medicine attaches to this movement I venture to think that the conciseness and perspicacity which ought to characterize American literary productions offer advantages over some of the European standards which have thus far prevailed Writing makes an exact man and reading a broad man, and the existence of abundant literary channels cannot fail to strengthen American medicine in two directions in which it is, perhaps, least proficient

Educational facilities in America have made rapid development during the past decade, but the devastating catastrophe that has overtaken Europe throws on America a new responsibility as well as an opportunity to provide on a larger scale for both postgraduate and undergraduate medical training Already there has been an influx of foreign students of medicine, and in order to meet their requirements and maintain ourselves as competent leaders and teachers, there is a call for more modern, more elastic, and better organized institutions in all departments of medicine, especially in the fundamental medical sciences

If these demands are to be met there must be firm resistance against any temptation to suspend scientific activities in the universities because of the demands of the war It is to be hoped that the sources of voluntary support on which our research and educational institutions largely depend may not be taxed out of existence, or crippled in capacity, or estranged, by unwise legislation A portion of the vast increase of the wealth of the country should in some way be made available in the support of medical science An early end of the war is to be hoped for, so that the increased wealth may not be dissipated by a continuation of the enormous military outlay now in preparation There can be little doubt that the exhaustion of resources in Europe will entail a period of lean years for many of the interests of science We may not again make our wonted visits to the highly respected centers of medical learning in Europe with the same subservience as in former times Moreover, it must be admitted, with regret, that somewhat different standards will in future be employed in estimating the relative value of foreign and domestic training in medicine Americans have fully acknowledged and liquidated their debt to European medical science, in the minds of some they have overvalued it, but now the times have changed, and we shall repel the enemy whether he come in the form of a military invasion, or as a more subtle undemocratic and materialistic philosophy, or as autocratic and overadvertised science

In the new era thus opened in American medicine, and accelerated by war conditions, the necessity of establishing the strictest standards of intrinsic worth and utility necessitated by war conditions will assure that physiology and pathology exert a commanding influence, for these are the central medical sciences beyond the established boundaries of which medical activities proceed at their peril In educational schemes, these fundamental branches must be inculcated in their fullest scope, so that every graduate in medicine shall acquire a sound physiologic and pathologic common sense

In the conduct of research, a knowledge of physiology and pathology must be regarded as an essential qualification, if research is to be genuine and medicine is to make real progress Otherwise practical medicine will have blind leaders, will be swayed by every wind of doctrine, and will be caught in the eddies of incompetent speculation

Finally, in the distribution of material resources and moral support, physiology and pathology must receive a liberal share, for these sciences are not self-supporting, they do not appeal to the untrained or the practical man, they owe their existence to design on the part of the intellectual leaders of medicine, and their vitality in any land is a measure of the loyalty which physicians hold to their profession

The history of American medicine, especially its progress during the past decade, is the sound assurance that the future support of these fundamental branches of science will be adequate

477 First Avenue

Medicine in China—The backwardness of medicine in China at present, according to Dr Wu Lien Teh (*Survey*, Jan 6, 1917), is due to theories, based on an incomplete knowledge of anatomy and physiology, which have prevailed among all classes for over 3,000 years The ancient Chinese, however, he says, were far ahead of their times, and taught and practiced inoculation for smallpox, medical statistics were published by the government during the Chou Dynasty, 600 years before Hippocrates, medical men were required to pass a state examination before being allowed to practice, isolation of cases of infectious diseases was practiced, intracranial surgery was known, a national pharmacopeia, handed down for nearly twenty centuries, included such drugs as mercury, arsenic, iron, sulphur, camphor, aconite, castor oil and digitalis, and organotherapy was practiced The science of hygiene was known, and though modern sanitation is rarely seen in Chinese cities, it is said that a certain system of personal hygiene is practiced Su Wen Ling Ch'u in his book, 2,600 years ago, defined hygiene as health preservation in order that life may be lived to an old age, and advised "restraint in all appetites, and cleanliness in house and person"

Chou Kung (1105 B C), brother and adviser of the first emperor of the great Chou Dynasty, recognized the value of medical statistics, as he showed by giving the following advice

> In every country there are sick as well as healthy people When treating the former they should be separated into those suffering from internal and those suffering from external complaints (that is, medical and surgical cases), and careful notes kept At the end of the year these notes should be arranged and the records tabulated From information thus obtained, rules regarding treatment and dieting may be revised, and, wherever possible, adopted If, after this, future statistics show that out of ten patients treated all get well, every satisfaction may be felt If, however, only one out of ten dies, the results may be regarded as good, if two out of ten die, the results are only fair, if three out of ten die, they are poor, if four out of ten die, they are bad

The relation of diet to health was also recognized, and food was rarely eaten uncooked Regarding diet Chou Kung says

> In spring eat more sour stuff, in summer, try more bitter things in autumn, cook more hot dishes, and in winter, consume more salt food

GUNSHOT FRACTURES OF THE SHAFT OF THE HUMERUS *

JOSEPH RILUS EASTMAN, M D
INDIANAPOLIS

Since nearly every case of gunshot fracture of the bones of the extremities is compound and infected, there arises in practically every instance the important question whether or not one should strive in the presence of infection, perhaps taking the form of active phlegmon to secure coaptation and provide extension

Four measures, as stated by Rydigier von Ruediger, are of indisputable value (1) reposition, brought about in the most gentle and cautious manner, (2) the most precise and uninterrupted immobilization not disturbed during the change of dressings, (3) a supportive apparatus, allowing free access to the wound, (4) a supportive apparatus, the making and use of which requires the least technical skill and experience

It is established that many gunshot wounds of the soft parts, even in soldiers coming from the necessarily insanitary trenches heal by first intention, as Simon and Pirogoff have stated In the case of gunshot wounds of osseous tissue, however, a stage of infection with suppuration, while not fairly to be recognized as an obligate stadium, as Strohmeyer contends, is certainly present in an overwhelming majority of instances For example, in our gunshot fracture material in Reserve Hospital No 8, Vienna, embracing more than 500 cases, we have operated in less than a dozen which healed by first intention

In gunshot fractures of the humerus with active infection and with extensive swelling and great tenderness, the obstacles in the way of securing good immobilization and extension are sometimes insurmountable, so that the surgeon must be content first to treat the infection without regard for the unfavorable position of the fragments Nearly always, however, immobilization is possible, and likewise extension may be provided, even if it be in so simple a form as gravity extension brought about by the downward pull of the heavy swollen member lying on a simple internal splint

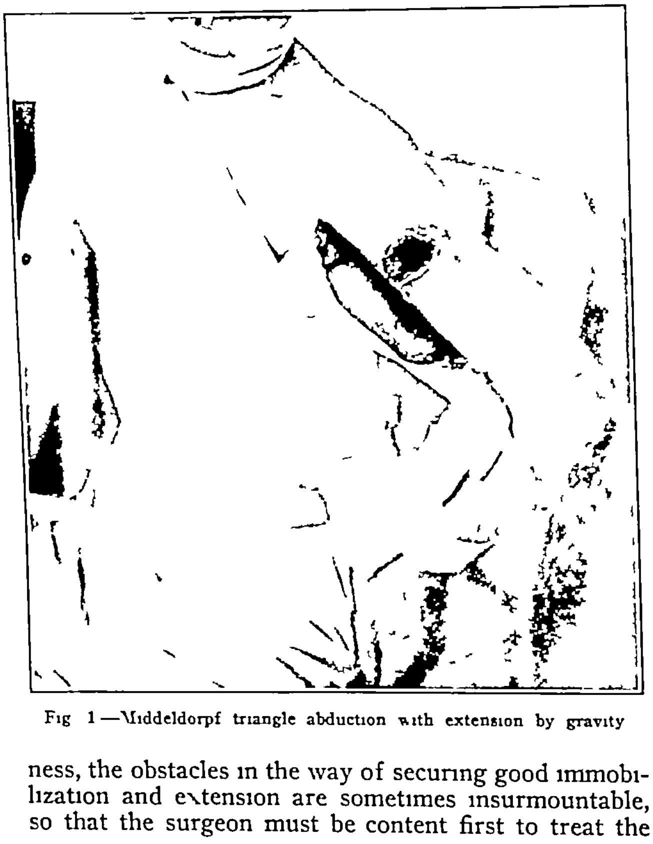

Fig 1—Middeldorpf triangle abduction with extension by gravity

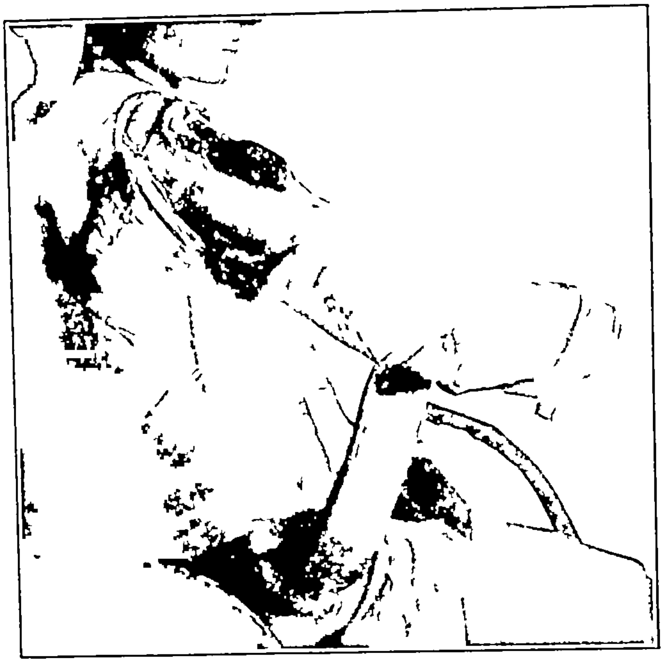

Fig 2—Hoffmann splint abduction with slight gravity extension

Von Eiselsberg, Rydigier, von Haberer, Burian and many others have spoken of the desirability and need of greater attention to the position of bone fragments in the presence of infection Perthes,[1] on the other hand, in speaking of badly infected femur fractures, advises against measures aimed at reposition until acute infection has subsided This, however, as Rydigier observes, should apply only to radical or forcible means to secure coaptation and extension There is little or no difference of opinion as to the advisability of providing rest and extension, if thereby nothing is done which interferes with the proper treatment of the phlegmon

In the correct position of the bone fragments, drainage is better than when the bone ends lie in abnormal relation in lacerated muscle tissue (Rydigier), and the reposition of fragments is easier before extensive scar formation has shortened and hardened the soft parts

In a large number of gunshot humerus fractures it has seemed inadvisable because of severe pain and swelling to apply any extension device which could in any way cause circular constriction of the arm Thus, weights hanging by bandages from the flexure of the elbow or any extension apparatus causing pressure over the infected swollen area or near it were, as is perhaps quite obvious, found to be impracticable

The weight of the dependent heavy swollen arm itself often operates to excellent advantage in securing a moderate degree of extension With the added weight of a plaster cast, a Toepfer or Kramer woven-wire splint or the much superior open heavy wire splint of Thomas, Eiselsberg or Englemann, the last three allowing free access to the wound, there develops traction from the gravity pull alone

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* Read before the Section on Surgery General and Abdominal at the Sixty Eighth Annual Session of the American Medical Association New York June 1917

[1] Perthes München med Wchnschr 1915 p 756

In the use of the Middeldorpf triangle (Fig 1), an excellent splint is provided for the support of the humerus fragments and for their retention in alignment, while the weight of the swollen arm furnishes some downward traction

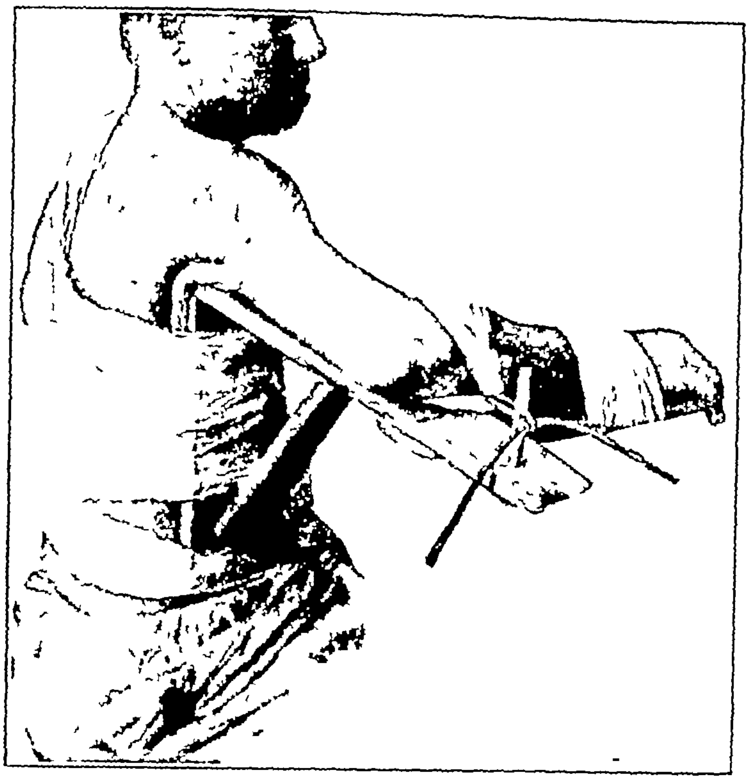

Fig 3—Modification of Hoffmann splint. Ratchet device regulates abduction and degree of gravity extension

While the abducting splint of Hoffmann (Fig 2) and its various modifications (Fig 3) provide comfortable support for the fractured arm, they do not allow of gravity extension, as does the Middeldorpf triangle (Fig 1)

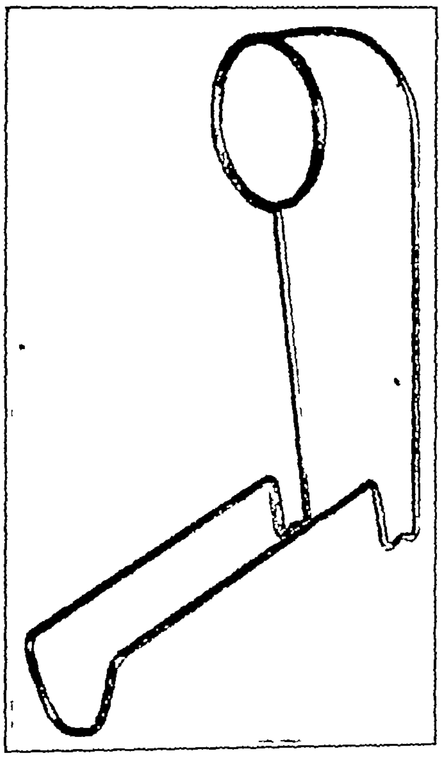

Fig 4—Thomas wire splint

Splints like that of Hoffmann, which hold the humerus in abduction at or near a right angle with the spine, are of greatest service in the case of gunshot fractures of the upper end of the humerus shaft, owing to the possibility of stiffness or ankylosis of the shoulder joint In such a case the upper arm is with prudence fixed in marked abduction for the reason that should stiffness or ankylosis supervene, the mobility of the entire upper extremity will be dependent on the mobility of the scapula alone, and the arc of mobility of the ankylosed shoulder is greatest if the fixation has occurred with the humerus in abduction so that when the arm hangs at the side, the tip of the scapula approaches as nearly the midline of the back as possible (Wullstein-Wilms)

In gunshot fractures of the upper humerus without great swelling of the soft parts, strong traction may be secured by using the wire splint of Thomas (Figs 4 and 5) or my wooden modifications of it (Figs 6 and 7) Here extension is maintained by a broad bandage or cravat across the upper forearm at the flexure of the elbow, and counterextension is provided by the axillary part of the splint Elastic pull is furnished by a rubber band or spiral spring interposed in the cravat at its attachment below

In fractures with wounds on the inner side of the arm, the device of Burian shown in Figure 8 may be utilized for immobilization and extension Two cravats, one in the axilla and the other at the elbow, both attached to cords passing over pulleys, receive elastic traction from a spiral spring at the back of the splint

More important than any splint or cast for the treatment of gunshot fractures of the humerus is the principle that each case requires individual consideration—that no one device is suitable for all cases For example, in fractures suitable for the Hoffmann splint, it may be impossible to immobilize the arm with comfort in abduction at right angles to the spine, in which instance resort may be had to a simple modification of the Hoffmann splint shown in Figure 3 which allows any degree of abduction The post supporting the upper arm-rest moves on a ratchet on the base lying against the thorax Thus, the degree of abduction may be changed at will without disturbance of the dressings

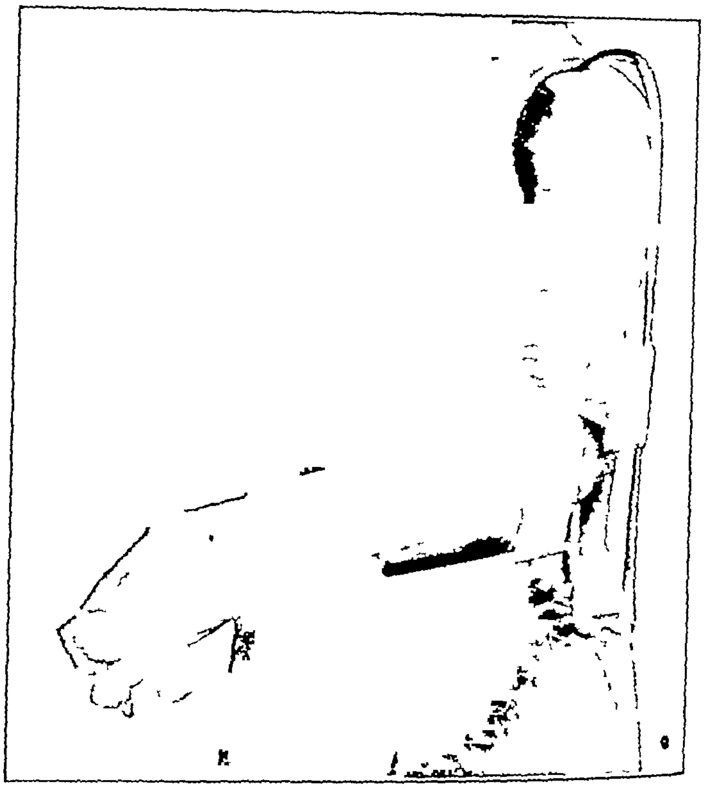

Fig 5—Thomas wire splint Extension by elastic traction at flexure of elbow

Not many patients with gunshot fractures of the upper arm will find adhesive plaster or masteol[2] and weight extension comfortable, owing to the tenderness and pain of the infection To most of the soldiers thus wounded, we have found such extension methods intolerable In a few instances in which swelling and tenderness were not marked, mastesol extension has been well borne, especially when the extension was combined with rest in bed In general, however, it may be said that a traction splint like the wire splint of Thomas, permitting, as it does traction on all fragments in all directions and allowing free access to wounds wherever situated and not confining the patient to bed is greatly superior to adhesive strap extension

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[2] Masteol is a glue made of alcohol benzin, Venice turpentine and resin with which flannel straps are attached to the extremity

In treating the infection of gunshot humerus fractures in addition to immobilization, removal of infected bits of clothing incision and drainage, it will not infrequently be desirable to employ hot, wet antiseptic dressings The Thomas splint permits the application of hot fomentations to any part of the arm

For the hot wet dressings, Dakin's neutral solution of chlorinated soda has proved of great merit It is cheap, a very important matter in war surgery, and is highly bactericidal Bedridden humerus fracture cases, that is, those with extensive infections, may be treated by continuous through and through irrigation as are the infections of the lower extremity Thus, in deep and extensive infections of the arm, a rubber tube is inserted to the bottom of the wound or entirely through the member, and the solution is allowed to flow into or through the wound by the drop method, as suggested by Carrel Excellent results have been attained in fractures of the lower end of the humerus with shattering of the elbow by placing the arm in a continuous hot bath of neutral solution of chlorinated soda

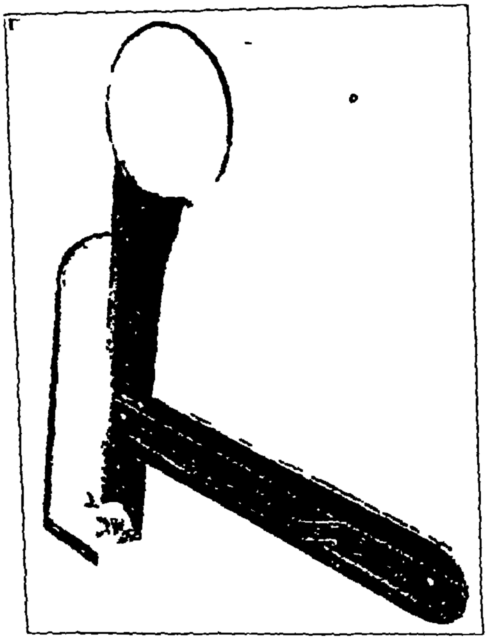
Fig 6—Author's wooden splint, light in weight but not serviceable if wound is on inner aspect of arm

Solution of aluminum acetate (Burow's solution) is likewise popular in Austria for the continuous bath in infections

Ambulant patients have large hot, wet dressings of neutral solution of chlorinated soda applied around the drainage tube and over the open wound The dressings are changed at frequent intervals

The open method of treating fracture wounds recommended by Braun, Loercher and Walzel has proved to be a valuable resource, obviating, as it does, the frequent painful changing of dressings with destruction of granulations, and minimizing foreign body reaction In favorable weather, infected gunshot fractures, like all other infected wounds, were exposed to the sun's rays for several hours daily The solar rays without doubt hastened the drying up of secretions and stimulated epithelial growth in many cases Pyogenic bacteria and contaminating saprophytes succumbed rapidly in the sun

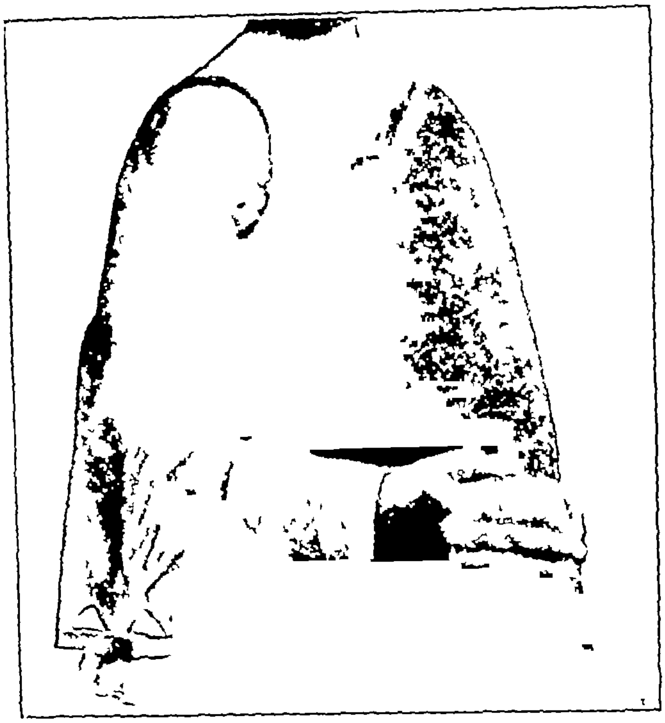
Fig 7—Wood modification of Thomas splint

With subsidence of infection after all signs of inflammation have passed, gunshot fractures of the humerus may be treated safely by the more forcible methods of extension, for example, with the bridged plaster-of-Paris cast of Rydigier, in which two segments of plaster, the one encasing the shoulder, the other the elbow, are held apart by an iron brace The iron bridge is bent at right angles above and below, and the ends are incorporated in the two plaster segments A screw like that used to render wire taut is set in the brace and extension is developed by forcible separation of the two segments of plaster cast Obviously, forcible extension may also be secured with the Thomas wire splint or any one of its modifications

Unfortunately, shortening of the soft parts and scar formation as well as callus militate strongly against the success of extension methods if these are not applied early, hence the reasonableness of beginning extension as early as possible in all infected gunshot fractures of long bones

Fig 8—Burian pulley splint.

In those cases of severe infection demanding postponement of all efforts to correct deformity until fixation of the fragments in faulty position has become so firm as to exclude extension treatment, resort must be had to open operation as the only means of restoring normal anatomic relations and functions The Lane plate, wiring, bone peg and dowel graft methods are all useful in appropriate cases We have used the Lane plate in cases in which the tendency to angulation was such that it was feared the dowel graft or intramedullary bone peg might break Wiring was employed in long oblique fractures, and intramedullary autogenous bone grafts were used in all cases in which the shape and position of the fragments were such as to admit of their use, that is, when the medullary canal was well preserved in the ends of both fragments Intramedullary grafts were preferred to dowel grafts because of the greater strength of the former

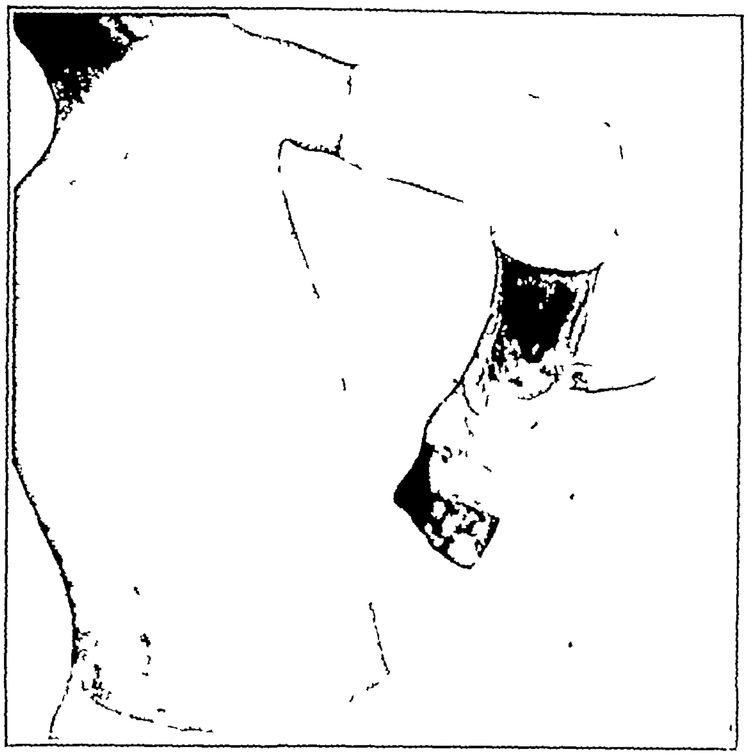

Fig 9 —Bridged splint The weight of such a splint applied to upper arm gives considerable gravity extension

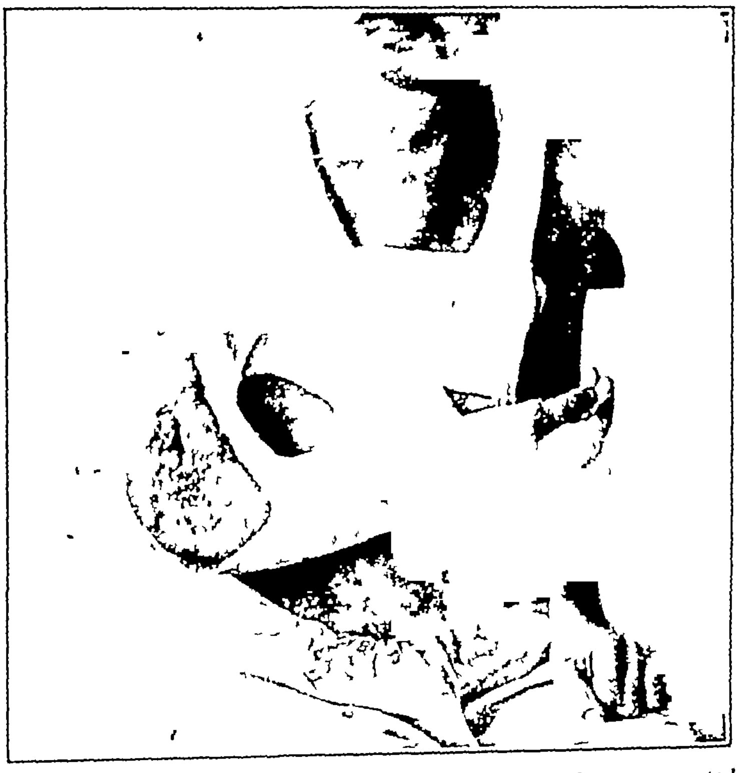

Fig 10 —Method of splinting with plaster in badly comminuted humerus fractures

The Lane plate was used, for example, to unite the pointed ends of fragments which it would have been difficult to unite directly by bone grafting An advantage of the Lane plate is based on the circumstance that apparently cured infections often reappear after bone plastic operations The reawakening of dormant infection is a recognized and not infrequent sequel of operation in gunshot fractures The Lane plate, if it must be removed because of the reappearance of infection, can be taken out easily, certainly much more easily than an intramedullary bone peg

In view of the fact, noted by all surgeons of experience in the operative treatment of gunshot fractures, that infections apparently entirely healed for many weeks will reappear as the result of trauma, hemorrhage, etc , incident to operation, no open operation for the correction of deformity due to gunshot fracture should be undertaken until several months have elapsed after the disappearance of every sign of infection

As an evidence of the respect in which the Austrian surgeons hold this late infection or their dread of it, mention may be made of a proposal of Finsterer, made to the Vienna Society of Military Surgeons, that after healing of infected fractures with bad deformity, no attempt should be made in many instances to operate at the site of fracture but as remote from it as possible For example, after healing of an infected fracture of the upper third of the femur or humerus with decided angulation, the bone should be divided at a lower level, compensation made for the angulation above, and the bone elongated as tendons are lengthened by splitting the bone longitudinally with a circular motor saw and cutting out laterally above to the right and below to the left, sliding the sawed surfaces along each other until the proper degree of elongation is secured (Fig 13)

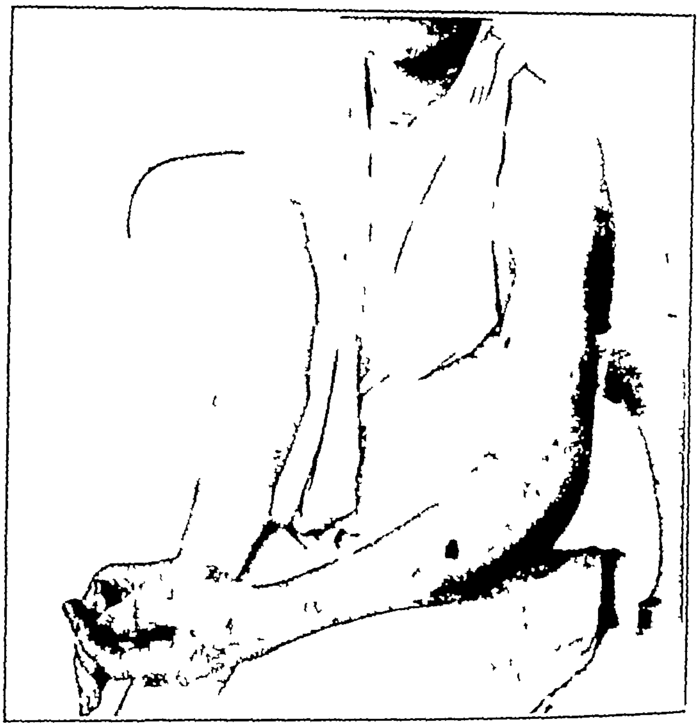

Fig 11 —Swelling accompanying infected humerus fracture contraindicating use of encircling bandages for traction

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ABSTRACT OF DISCUSSION

Dr Leonard Freeman, Denver Dr Eastman, I think deserves our utmost commendation for bringing this subject before us, because, although we are at war with Germany we are very glad to know what Germany is doing scientifi cally in the treatment of wounds Dr Eastman has particularly emphasized the use of the Steinmann pins or nails, which are driven through the lower end of the femur, the upper end of the tibia, or the os calcis for making extension in fractures I think attention should be called to another method of making extension in a similar way because the pins driven through the bones are apt, in the course of time, to cause necrosis The same thing can be done by silver wire looped around the upper part of the os calcis, between the Achilles tendon and the tibia without penetrating the bone For this purpose is needed a long needle fixed in a handle, with an eye near the point The needle is first plunged directly through, above the os calcis, between the Achilles tendon and the tibia, and the wire is threaded into its eye and pulled through Then, facing the bottom of the foot, the needle is plunged upward through the tissues of the bottom of the heel along either side, and out of the skin-openings through which the wire passes, and the ends of the wire threaded into the needle and drawn out through the bottom of the heel so that in the end we have the wire slung around the os calcis, with its long ends projecting through the skin of the heel The advantages of this procedure lie in this it is simple, it keeps the foot up straight, the bone is not injured and there is no pressure of the wires on the skin of the sides of the foot, in fact there is no pressure on the soft parts at all If, every two or three days, the small perforations where the wires come out are painted with 2 per cent iodin, there will be no infection about the wounds, as I have repeatedly proved to my satisfaction

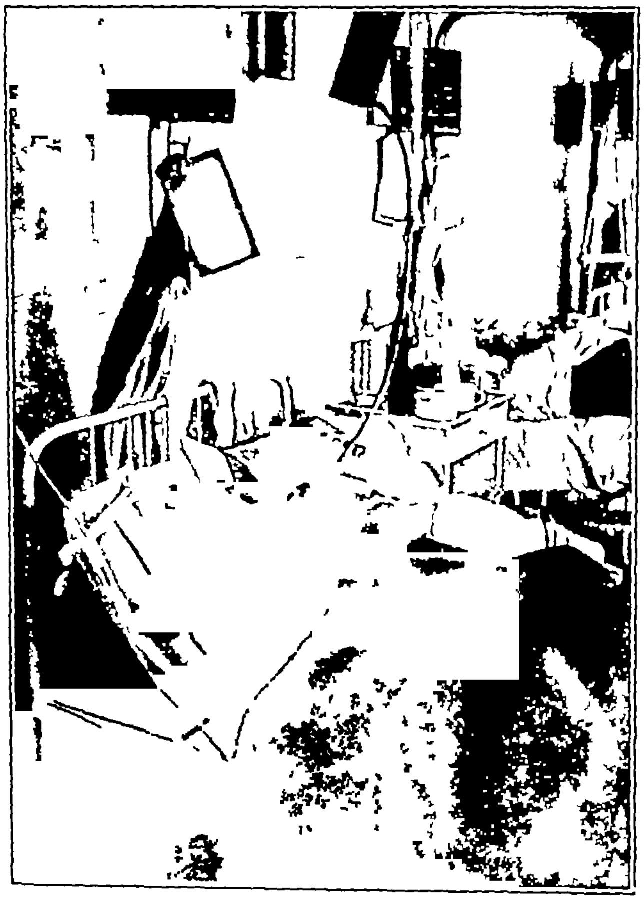

Fig 12—Continuous irrigation with neutral solution of chlorinated soda in infected humerus fracture.

Dr Bernard H Oberembt, Milwaukee, Wis I had both the pleasure and privilege of being with Dr Eastman in Austria and I would like to confirm all he has said One of the important things is splinting the fractures for transportation In every case, when properly splinted, the infections when they came to the base hospital were not so severe, while patients with badly splinted fractures suffered severely in transport, their phlegmon was much greater, their constitutional symptoms were a great deal worse and their treatment was necessarily a great deal more severe, so we cannot urge too strongly on all our men at the front that they should properly and thoroughly immobilize every fracture that is sent back The best splint was, for femur fractures, the Hey-Grove splint. It is cheap to make, easily made, it gives extension continuously, even while the patient is being moved and the wound is accessible at all times for thorough and easy dressing

As to the treatment of these infected comminuted fractures, Dakin's solution (neutral solution of chlorinated soda, Carrel-Dakin) was used in more than 3,000 cases in our institution, with very gratifying results Every one of us could speak highly for the use of it The idea expressed by a lot of men that all that is necessary to clean up these wounds is Dakin's solution, will only put Dakin's solution in disgrace if we continue to believe that Most of these cases clean up so rapidly that one can suture in eight or ten days Practically all these cases are of low grade infection When it is gas bacillus infection, or streptococcus infection, large incisions and perfect drainage are required In all infected wounds it is essential to remove every bullet or shrapnel and all pulverized bone and the bone splinters which have become detached from their periosteum They are all foreign bodies and must be removed to give the Dakin solution a fair chance We used many other methods and continue to use them Both the aluminum acetate and Dakin's solution give excellent results, especially in the continuous bath In some of the cases in which Dakin's solution did not prove as efficient as we hoped, we changed to the aluminum acetate with better results On the other hand, when they did not do well on the aluminum acetate we

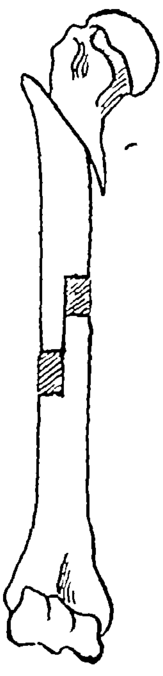

Fig 13 — Finsterer's method of restoring length of shortened humerus advocated by him because of the danger of re-awakening infection by operation at site of fracture

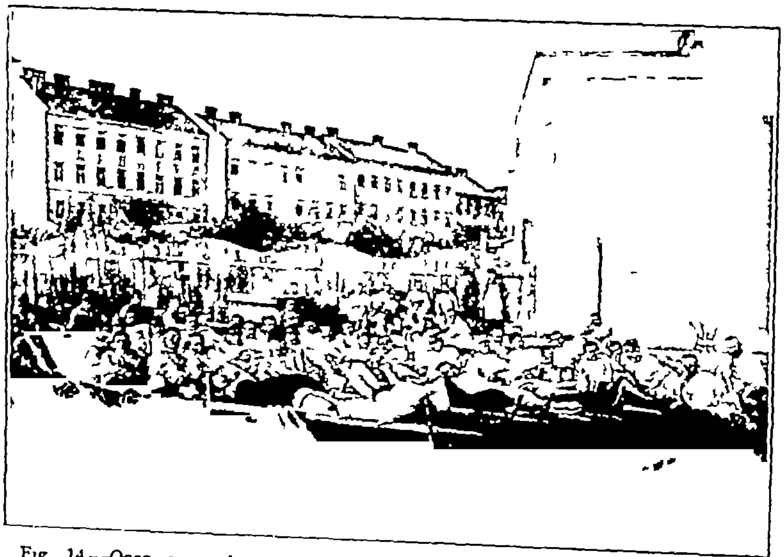

Fig 14—Open air and sun treatment of infected fractures in garden at Reserve Hospital No 8 Vienna.

changed to the Dakin solution, often with improvement So it is well that every man should thoroughly understand the use of Dakin's solution The solution itself constitutes the smaller proportion of the cure, but its use, and how to use it and to use it properly, acquire a good result, in other words, the mechanical treatment of infected wounds in the Carrel-Dakin method is 80 per cent of the cure

Dr Frank P Corrigan, Cleveland Going back beyond consideration of the ultimate treatment of these cases and in line with Dr Oberembt's remarks about early care, immediately after the casualty occurs, I have a suggestion to offer for the transport of these cases This consists of an extensible frame and compressing sleeve woven so that it contracts and expands This could be employed by any one immediately after the casualty occurs It has the merit of applying even compression to the limb, and so controlling hemorrhage It gives extension and counter extension In connection there is a clamp that fits over the stretcher rod which gives rigidity

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CONSIDERATIONS ON EPIDERMOLYSIS BULLOSA *

AUGUSTUS RAVOGLI, M D

CINCINNATI

The case of epidermolysis bullosa under consideration was one of a very severe type which was reported by Nelson[1] in 1916 The condition of the patient was constantly growing worse, and the parents, who were wage earners, being unable to care for the patient, he was taken to the Cincinnati General Hospital, and placed in my service in the dermatologic department It will be helpful to review the history of the patient as given by Dr Nelson

REPORT OF CASE

E P, boy, aged 11 years, of Cuban parentage, was born in Tampa, Fla The father and the mother are both in good health They assert that they have never had any eruptions on the skin, but the paternal grandfather had "running sores," due to some bad disease

The patient was the fifth child in the family He was normal and fairly developed at birth The mother recently has had some miscarriages When the patient was born, the mother could not nurse the babe, and a wetnurse was employed The parents say that this nurse had some eruption of the skin When the babe was 9 days old, eruptions of small bullae appeared on different parts of the body and head Since then bullae have developed on the body continuously with the exception of the scalp The parents report that the eruption is worse in summer Every little injury to the skin becomes the seat of the bulla Within half an hour from the injury, the skin turns red and bullae soon appear They are at times formed in the place in which others were healing up The blebs usually contain straw-colored serum, but many bullae contain blood-stained serum Some of the blebs burst and the raw surface heals up in a few days, while in other instances the blebs remain intact, the serum is reabsorbed, and the epidermis is cast off in the form of thick scales Slight itching precedes the development of the bulla In five or six days the lesions become healed, leaving a brownish pigmentation with a rough, scaly epidermis

It is interesting to note the complete absence of the nails of the fingers and toes The parents report that the nails were present at the birth of the child, but that when he was 1 year old they disappeared While in the hospital service, the boy fell off the bed, causing a cutaneous wound on the forehead which required a few stitches No bullae appeared around the wound or on the bruised skin

With the exception of the bullous eruption, the general health of the boy has been good At the age of 5 years he had measles He is rather undersized for his age He has a full growth of dark hair on the scalp The iris is dark brown Teeth are not normal, being large, somewhat rough at the gums, and with faulty implantation His mentality is fair, he goes to the school in the hospital, is rather bright and learns easily An inspection of the body shows nearly the entire cutaneous surface stained with irregular pigmentation of a marbled appearance, with some whitish patches intermingled, the result of superficial cicatricial areas The parts which have been chiefly affected are the extremities which are more exposed to trauma The whole surface of the elbows are reddish violaceous, covered with shreds of dried epidermis which formed the bullae, and small bullae are found in clusters in this region The forearms show also some pigmented spots mingled with whitish cicatricial tissue marking the location of former bullae The hands and fingers are considerably deformed, the same reddish violaceous color noted on the elbows is seen on the whole hand Shreds of epidermis yet hanging indicate that the bullae were located mostly in the palms The fingers are deformed, thick, red, and covered with scales and kept in semiflexion The fingers have no nails, all traces of the matrix unguis are entirely absent, being replaced by thick whitish skin

The skin of the back and of the gluteal region is in the same dark pigmented condition, with recurrent bullae, especially where the trousers press against the skin In the lumbar and femoral regions, bullae, some of which are 2½ inches in length, are to be observed They are narrow in a transverse direction, representing the string which held up the trousers The knees are brownish-red with cicatricial areas to which hang epidermic scales, and with some crusts covering the broken bullae The legs, bluish red, are darkly pigmented, intermingled with thin superficial areas of cicatrix Ulcerated places are scattered in an irregular disposition

The feet, red-bluish, are covered with shreds of epidermis, which formed the vaults of the bullae Epidermic scales are more abundant on the soles The toes have no nails, on the ungual region of the second toe of the right foot a bulla can be seen, round and filled with bloody serum, which happened there when the picture was taken The epidermis of the whole part is thick with dark pigmentation, scaly wrinkled, hard and inelastic, yet the boy is able to walk and play without much discomfort

The bullae are formed in a short time in the areas of the skin exposed to trauma or to irritation The feet are often covered with bullae on the surfaces where the slippers were tied Some of the bullae, as stated, contained a light straw colored serum, others bloody serum Probably the difference in the fluid forming the bulla depends on the result of the intensity of the traumatism In general, the boy is healthy, during the last months that he was in the hospital he had a good appetite, receiving an unrestricted diet, and all his functions were regular The urine was normal, no indican, and the blood count revealed nothing abnormal The Wassermann test, which Dr Nelson[1] found negative, was likewise confirmed in the hospital laboratory

COMMENT

The most interesting points in the case are the formation of bullae, which began to appear a few days after birth, on any part exposed to traumatism or irritation, marked infiltration and discoloration after the lesions had subsided, the bullae showing some tendency to a concentrical disposition, and the total absence of the nails

This case, however, is in contrast with the case of epidermolysis bullosa reported by Wende, in which there was complete lack of hair of the scalp, eyebrows and eyelashes The nails in our case had completely disappeared, and were replaced by a smooth epidermis In the case of Wende some residual distorted nails could yet be seen Similarly, in the illustration of a

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* Read before the Section on Dermatology at the Sixty Eighth Annual Session of the American Medical Association, New York, June, 1917

[1] Nelson, A W Epidermolysis Bullosa, Urolog and Cutan Rev, 1916, 20, 378

case by Heller[2] the matrix unguis has yet some rudiments of an atrophic nail

CAUSATION

Every disease should be studied from its etiologic side, when the producing agent has been ascertained, the prevention and treatment can be determined The finding of toxic products as a result of the metabolic process in the system has afforded an explanation of several affections of obscure origin These toxic elements accumulate in the system either from lack of excretion or from a superabundance of their production These substances may be the result of normal changes in the tissue functions or of an atypical decomposition of the albumin Abnormal conditions of digestion in the intestinal tract often produce toxic elements which when brought into the circulation become the cause of different skin eruptions Some of these eruptions are associated with acute disorders of the stomach and intestine, as urticaria, eczema and pruritus, while others are the production of chronic disturbances, as several forms of acne Epidermolysis bullosa (so called) hereditaria, a stubborn and rebellious affection has been referred also to autotoxic dermatoses, on purely speculative views

By an increased irritation on the skin exudation can be produced in the urticarial wheals, with the detachment of the epidermis forming bullae In the delicate skin of children this condition often occurs, it is not only caused by a possible internal disturbance, but is also observed following bites of the mosquito or the *Cimex lectularius*

The theory of autotoxic substances explains diseases of unknown etiology, such as dermatitis herpetiformis Epidermolysis bullosa could be regarded as a hereditary liability of the skin to respond to any irritation, the formation of the bulla being the result of a lymph stasis,[3] the compression of the shoes, the irritation from any injury causing the effusion and the accumulation of serum under the epidermis

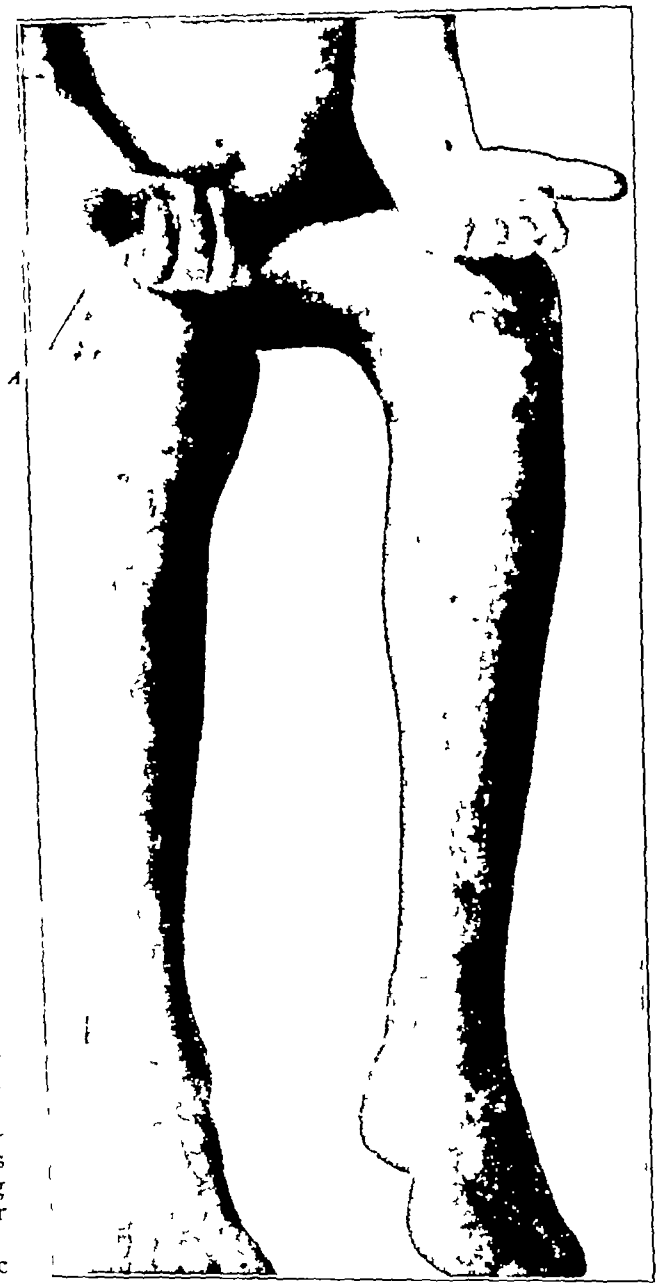

Fig 1—Epidermolysis bullosa *A* absence of finger nails epidermic shreds from bullae.

On the other hand, we cannot overlook the influence of the disturbances of the circulation on the production of skin eruptions The congestion of blood in the blood vessels may be the result of the irritation exercising spastic control, or of the paretic condition of the nerves regulating the circulation, the vasomotor nerves If the nerve is degenerated, the inactivity of the blood vessels will be permanent, while poisonous elements acting on the dilatatory nerves produce an effect which is only temporary

There would appear to be in these cases a common origin, which produces lesions of different appearance, but in substance the same It is for this reason that we find points of analogy between dermatitis herpetiformis, urticaria pigmentosa, epidermolysis bullosa, and even purpura and pemphigus Manifestations of an inflammatory nature depending on toxic agents, affect the vascular apparatus in a different degree, according to the individual susceptibility George Henry Fox,[4] in 1883, pointed out the exciting causes of urticaria, consisting in certain forms of irritation of the terminal nerves acting within or without the body He demonstrated a definite relation of the irritation to the eruption as evident as the cause to the effect

Manifestations of a vasomotor nature from paralysis of these nerves is chiefly revealed by the impairment of the functions of the nerve constrictors These alterations are permanent when caused by a divided or a degenerated nerve, but are only temporary when of poisonous origin The recurrence of the symptoms and their obstinacy are often the clinical signs of a maintained irritation on the nervous area The blood vessels, as the result of protracted constriction, suffer in their histologic structure, showing a condition similar to that found in arteritis and sclerosis, and the results, asphyxia and gangrene, are nearly identical The enlargement of the blood vessels, passive stasis, is in many cases a collateral one consequent to the constriction — or can it be the result of an irritation on the vasodilator nerves? All contractions of muscle tissue follow the action of the nerves which regulate their functions The irritation of the vasomotor nerves can act on their peripheral ramifications, or reach the vasomotor center in the medulla oblongata, there is also a system of individual centers in the spine For this reason, irritations on the system of vasomotor nerves may come from the brain, from the heart, from the skin, and from the blood vessels themselves From the cutaneous surface, impressions of a sensitive nature may be carried to the center and produce muscular contraction

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[2] Heller Julius Nagelkrankheiten Handbuch der Hautkrankheiten Mracek 1909 **4,** 600

[3] As shown experimentally by Weidenfeld Zur Physiologie der Blasenbildung Arch f Dermat. u Syph **52,** 3

[4] Fox, G H The Etiology of Urticaria, Jour Cutan and Ven Dis January 1883 **1,** 108

In this case it will be interesting to consider the action of the trisplanchnic which, by causing constriction and hyperemia in the abdominal organs, throws a surplus of blood into the capillaries of the skin In the case under discussion, the congestion of the cutaneous blood vessels has to be considered as of a passive rather than of an active type Pinkus[6] referred to the irritation of the vasomotor nerves in causing the contraction of the arteries which is to be observed in some neuritic cutaneous affections, and in all eruptive manifestations, which often accompany nervous diseases

The terminal ends of the sensitive nerve fibers when under an irritation have great influence on the vasomotor system The results of the irritation are readily seen at the point of application in the form of hyperemia, edema and urticaria In these cases the irritation may not be transmitted through the center to the motor nerves, but there is a short system of communication between the last sensitive fibers and the motor fibers which causes the eruption to remain local The irritations through the sensitive nerves reaching the center have great influence on the blood pressure through an increased heart action When the veins have difficulty to return the blood to the center, cyanosis and hemorrhages take place In other instances we see erythromelia (Pick), glossy skin (Weir Mitchell), and livid or marmorated skin In cases of paralysis of the secretory nerves in the affected region, diminution of perspiration is found Those nervous manifestations show the beginning of functional neuroses, which are not our present object of study

In this case we observe irritation on the surface of the skin, the sensitive end-fibers of the nerves bring the impression to the peripheral centers of the vasomotor nerves, at which point it is converted into a spastic contraction of the small arteries The spasm is soon followed by relaxation, the vessels are dilated and the blood fills them, thus causing congestion From the filled blood vessels an exudation of serum takes place, which in urticaria forms an edematous condition of the skin, or when in larger quantity forms bullae as in epidermolysis bullosa

PATHOLOGY

Biopsy has revealed little of the intimate pathologic process of the disease The first studies of Goldscheider, Elliot,[6] Blumer, Colombini,[7] Wende[8] and others on epidermolysis bullosa hereditaria, and those wc B Ochs, Bukowski,[9] Fred Wise and Lautman on 1 ye ermolysis bullosa in an acquired form, all agree the bo ne findings in the affected skin are those usually foreheac around tl present in inflammatory exudative processes The vesicles in their early formation are more or less deep in the malpighian layer The cover of the bulla is made up of the stratum corneum, with part of the mucous layer more or less degenerated The floor of the bulla is formed by the denuded papillary layer of the corium, the papilla being bare and distorted, serum fibrin and cells form the contents of the bulla

Some edema and infiltration in the corium are present, revealed by a kind of vacuolization in the granular layer of the epidermis, and by the detached condition of the basal layer from the papillae The capillary vessels are congested and somewhat dilated, surrounded by small infiltrating cells The contents of some of the bullae were clear, others were yellowish, turbid, and others brown and bloody, they have also contained leukocytes, a few eosinophils, blood corpuscles and pigment granules

The findings of Engman and Mook[10] differ from those of the other observers According to their studies, the principal changes occur in the elastic tissue fibers, which they assert are absent or sparsely distributed in the papillary and subpapillary layers of the cutis By the absence of the elastic fibers in the upper portion of the derma, they explain the histologic picture of the normal skin of these patients, and the clinical phenomena of the affection On various occasions we have stated that the elastic fibers have a great influence in maintaining the fluids in the tissues at an even pressure, and also to control the growth of the collagenous tissues This point of view affords a good explanation of the formation of the bulla On the other hand, it is not easy to believe that the whole surface of the skin may be subject to such a histologic dystrophic condition Moreover, most of the patients usually recover, hence it would be necessary to admit a new formation of the elastic fibers, which we know when once lost, are never reformed The skin which has been the subject of repeated attacks of bullae has naturally undergone changes in its fine histologic structure, and the delicate elastic fibers may have been distracted, disturbed and atrophied, but we can hardly admit it to be the result of the exudation in the tissues of the derma

SYPHILITIC HEREDITY

In my opinion the cause will be found in some disturbed condition of the vasomotor nerves, either from a somatic disorder in the meninges or in the connective tissues surrounding the vasomotor ganglions, and causing such irritability to react in the skin to each slight trauma Some condition of irritability may find its origin in a toxic condition in the circulation from a disordered admixture of the internal secretions Indeed, when the suprarenal glands are increased in their activity and the other glands are not able to counteract their action, general disturbances occur, which in the skin are revealed by increased pigmentation, discoloration due to the deposits of oxidized epinephrin in the tissues of the skin I do not want to theorize on the possibilities of the origin of the disorders causing the irritability of the vasomotor system Syphilis has been mentioned very little, but in those cases of epidermolysis bullosa associated with dystrophies, I cannot refrain from the idea that in those sufferers a syphilitic hereditary taint can be traced to either the parents or the grandparents In many cases, hereditary or congenital syphilis is shown

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is, F Allgemeine Pathologie der Circulationstorungen der
uch der Hautkrankheiten, F Mracek 1, 349

* Read be Am Jour Cutan and Gen Urin Dis, 1895, 13, 10
Annual Sessio Monatsh f prakt Dermat., 1900, 1, 457
une, 1917 W Jour Cutan and Gen Urin Dis, 1902, 20, 537
1 Nelson, A Ein Beitrag zur Lehre von der sogenannten Epider
916, 20, 378 editaria, Arch f Dermat u Syph, 1903, 67, 163

[10] Engman and Mook Interstate Med Jour July 1910

in the babe a few days after birth in the form of bullae on the feet and soles This condition has received the name of hereditary bullous syphilid Pemphigus neonatorum is nothing more than a syphilitic manifestation Vesicular eruptions in clusters or small bullous eruptions are seen on the soles of the feet and palms of the hands in persons who have had syphilis, which had been forgotten because the Wassermann test had been negative In case of syphilitic polyneuritis, through the courtesy of Dr H Hoppe, we have seen an eruption of large bullae affecting the soles of both feet, together with the nervous symptoms

In our little patient there are present stigmata indicative of a syphilitic taint in spite of a negative Wassermann test In the case of heredity it is possible that a few undeveloped spirochetes, in the form of spores, or encysted spirochetes not fully developed, contaminate the ovum They lodge themselves in the developing blood vessels of the fetus causing an alteration in the connective tissues surrounding the vasomotor center or the peripheral ganglions This tardy specific inflammatory process may gradually subside, and the spirochetes may even be dead, but hardening or a sclerotic condition of the delicate tissues may remain, which acts as an irritation of the vasomotor ganglions, revealed by the formation of bullae on any irritation of the skin This hypothesis has been suggested by the findings in the meninges in a postmortem of an old syphilitic, who had suffered for years with a stubborn case of parapsoriasis

It can also be possible that through a hereditary taint an altered condition of the internal secretions is produced The possibility that a few spirochetes have caused somatic alterations of the suprarenal glands with the results of an increased quantity of epinephrin in the blood which has brought a toxic influence on the vasomotor nerves is not entirely to be discarded Neither can we exclude syphilitic affections of these glands, when we have cases reported and well demonstrated of syphilis of the thyroid and of the hypophysis Thompson[11] reports a case of syphilitic involvement of the thyroid with severe symptoms of hyperthyroidism in an old man who denied all knowledge of venereal diseases but who evidenced a positive Wassermann reaction and made symptomatic recovery from mercurial and iodid treatment

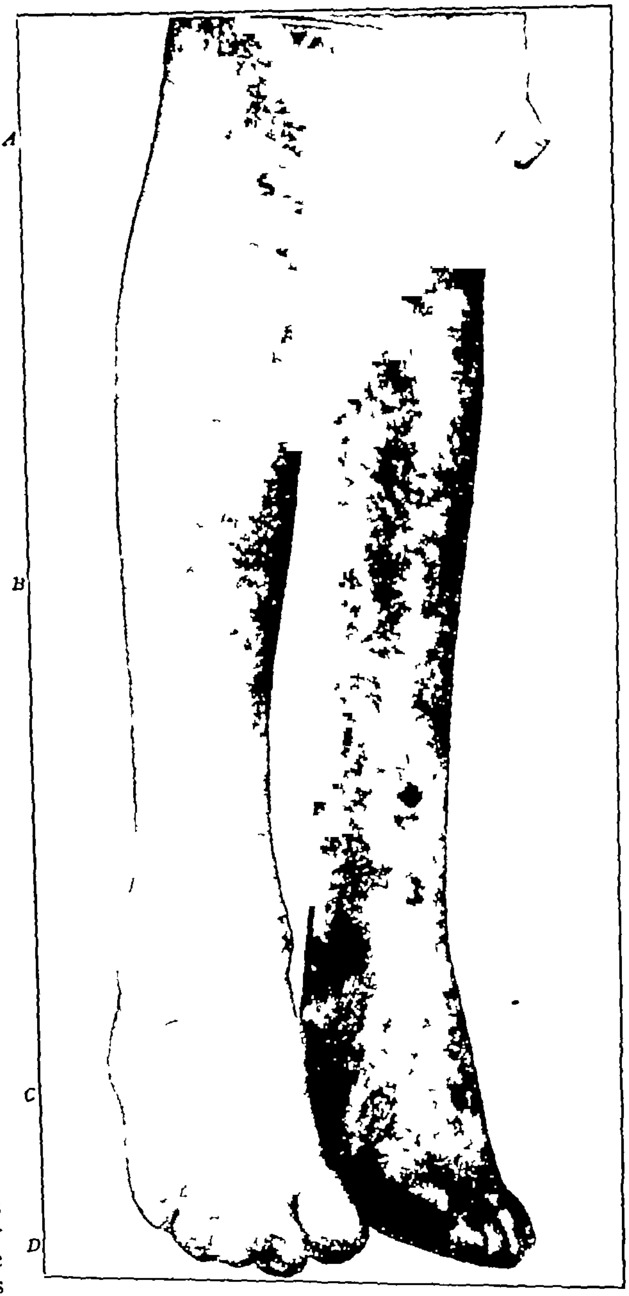

Fig 2—Epidermolysis bullosa *A* excoriations resulting from bullae *B*, pigmented spots *C* superficial scar with epidermic shreds *D* absence of nail bullae on the second toe right.

In regard to syphilitic affections of the hypophysis, Simmonds[12] referred to cases of diseases of this organ especially in congenital syphilis They were carefully studied The pathologic alterations consisted in miliary gummas, or in the new formation of plasma cells, and interstitial growth of connective tissues

Epidermolysis bullosa hereditaria exists, and in several instances cases of this disease have been reported occurring in several members of a family for the second and third generations The cases of Bettman[13] and Valentine[14] are of the greatest interest, showing the disease reproduced in several members of the family to the third generation Stelwagon and Gaskil,[15] Engman and Mook[16] and others have reported cases in which only one member of the family had shown this peculiar affection In several cases under observation, my attention was not called to the existence of the same symptoms in other members of the family, they were isolated cases

PROGNOSIS

If we study the patients with a common type of the disease, it will be observed that after many relapses they recover The skin regains its tonus and the old bullae heal up easily, leaving little or no pigmentation, and finally disappear In reference to epidermolysis bullosa hereditaria, or better, epidermolysis bullosa congenita of a dystrophic type, we have never had occasion to study the case for the patient's lifetime In the case of Hallopeau,[17] which he considered as resulting from trophic alterations, the patient continued to show bullae after any little trauma throughout life

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[11] Thompson, Lloyd Syphilis of the Thyroid Am Jour Syph 1917 **1**, 179

[12] Simmonds M Ueber syphilitische Erkrankungen der Hypophysis Dermat. Wchnschr 1914, Festschrift Zur Eroffnung des neuen Instituts für Schiffs- und Tropen Krankheiten in Hamburg, p 194

[13] Bettman Dermat. Ztschr, 1903, **10**, 561

[14] Valentine Zur Kasuistik der Epidermolysis bullosa hereditaria, Arch f Dermat u Syph, 1906, p 87

[15] Stelwagon and Gaskil Jour Cutan Dis 1912 p 428

[16] Engman and Mook A Study of Some Cases of Epidermolysis Bullosa, with Remarks upon the Congenital Absence of Elastic Tissue *Jour Cutan Dis.* February, 1906 p 65 A Further Contribution to the Study of Elastic Tissue in Epidermolysis Bullosa ibid June 1910 p 275

[17] Hallopeau Ann de Dermat. et de Syph. 1898 **2**, 721

An interesting question arises whether or not the two forms have to be considered identical, and arising from the same causes A patient referred by Vidal[18] manifested severe dystrophies of the nail, and atrophy and desquamation of the skin, bullae appearing only in the first months of life, chiefly on the hands and soles, later bullae ceased to gather

The variability of the symptoms has been the cause of some difference in the nomenclature so we find that Philippson[19] terms a case epidermolysis bullosa habitual, traumatic Colcott, Fox and Bowen[20] reported cases as bullous dermatitis Luithlen[21] considers many cases of this kind reported as pemphigus by Duhring, Roach, Brooke and Marshall to be epidermolysis bullosa The case of Hebra, under the name of hereditary pemphigus, very likely was one of epidermolysis bullosa hereditaria, as several members of the same family had suffered the same bullous eruption

This disease has to be entirely separated from pemphigus It resembles pemphigus only in the formation of bullae, which are simply epiphenomena Pemphigus is a generalized bullous eruption, with disturbance in the excretory function of the kidneys In pemphigus the urine is of neutral reaction and under the microscope shows renal cells and casts We can define pemphigus as a bullous eruption produced by the poisoning of the system from toxic elements not removed from the body by the filtering action of the kidneys In epidermolysis bullosa, Nikolsky's sign, which is constantly found in true pemphigus, is not present

TREATMENT

After our considerations of this obscure affection we have come to establish these etiologic factors 1 Heredity in some cases 2 A vulnerability of the skin 3 Disturbed stability of the vasomotor system All these systemic conditions must be recognized as having an origin or a focus of toxicity in the organism On this theory we have established the treatment The use of remedies vaguely and in a haphazard way, as Pollitzer[22] said, is less likely to lead to clear ideas, than an experience even based on a false theory A working hypothesis, even if it is proved wrong, is more advantageous than no theory at all Following my idea of a possible hereditary syphilitic taint, I have given in several cases of simple epidermolysis bullosa repeated small doses of calomel, and I was gratified to see satisfactory results Of course, while one-sixth grain of calomel is being administered, with 1 or 2 grains of sodium bicarbonate, nothing interferes with the use of iron tonics to improve the general nutrition

The patient in the case under discussion was treated with small doses of calomel, and with an iron tonic His mouth unfortunately did not tolerate the calomel, and on account of the stomatitis we were compelled to discontinue its use Yet we did not deviate from our first idea Injections of neosalvarsan, 0 3 gm each in oil were administered in the gluteal muscle, once a week From the first injection the bullae began to diminish in number and size After the fourth injection few bullae were to be seen, and the boy had greatly improved in general nutrition and in the condition of the skin He was discharged from the hospital service as well, and nothing further was heard from him

It seems that the use of arsenic in the form of neosalvarsan has given the best results Colombini praised the use of arsenic in increasing doses, together with iron tonics In all cases of pemphigoid eruptions following vaccination in children, the best results have been obtained from the injections with solution of sodium cacodylate In two cases a culture was taken and an autovaccine was prepared, of which injections were given every other day, no results could be observed

From the therapeutic results it can be stated that in epidermolysis bullosa hereditaria or congenita, or in acquired form, the best remedies are mercurials and arsenicals Whether they act on the system correcting the diathesic condition, or by preventing or opposing formation of toxic elements in the blood, or whether they influence the vasomotor nerves restoring their functional stability, or act on the somatic structure of the skin, diminishing its vulnerability, is not known to us All that we can say is that by their use we have obtained good results

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ABSTRACT OF DISCUSSION

Dr Harold N Cole, Cleveland I did not hear Dr Ravogli speak of a lack of elastic fibers in the skin of these patients afflicted with epidermolysis bullosa In my cases there was such a lack

Dr Charles J Shepard, Columbus, Ohio Two cases of epidermolysis bullosa have recently come under my observation The first was in a student about 23 years of age, presenting small sized blebs as a result of traumatism, especially on hands and feet He gave a history of having had lesions of various sizes earlier in life and always following a slight injury His trouble began in early childhood, and preceding generations of the family showed the same condition

The second case was in a young boy 10 years of age, the blebs following the slightest irritation and varying in size from 1 or 2 inches in diameter to the size of the palm The skin showed pigmentation and atrophic changes The hair was fine and thin The nails on both hands and feet were shed and the fingers presented a webbed appearance His general health was below par No family history of a similar condition was obtained

Dr. A Ravogli, Cincinnati After a slight injury, a knock or rubbing, the skin gets red, hyperemic, after five or six hours it is slightly edematous, swollen like an urticaria wheal, the epidermis is distended, and so a bulla is formed in a few hours It is worthy of remark that once the boy fell out of bed cut a big gash on his forehead and no bullous formation took place

In reference to a certain similarity between dermatitis herpetiformis and epidermolysis bullosa hereditaria, it is undeniable Both are obstinate, persistent, only the eruptions in dermitis herpetiformis occur mostly on the trunk, arms and thighs without any injury of the skin, while in epidermolysis bullosa the bullae are formed after injury to the skin Bullous eruptions of persistent nature follow vaccination It seems that poisonous substances formed in the vaccine pustule, probably of streptococcic origin, infect the lymph spaces of the skin, reproducing inflammatory symptoms in the form of vesicles and bullae

Cases of epidermolysis bullosa hereditaria, or acquired after several years get well Hallopeau, however, reported a case in which the formation of bullae lasted nearly all of the patient's life

If lack of elastic fibers could be the cause of this hereditary condition, no improvement or recovery could be possible, because the elastic fibers once lost are not reformed The disease disappears gradually and consequently it cannot be due to a permanent dystrophic condition

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[18] Vidal Reunion hebdomadaire des médecins de l'Hopital St Louis, April 14, 1889

[19] Philippson, L Gior ital d mal ven, 1900, No 5

[20] Bowen, J T Jour Cutan and Gen Urin Dis, 1898

[21] Luithlen, F Epidermolysis bullosa hereditaria, Handbuch der Hautkrankheiten, Mracek, 1, 753

[22] Pollitzer, S The Principles of the Treatment of Syphilis, Jour Cutan Dis September 1916

A young man who was employed in a dry goods store, every time he handled boxes the following day had bullae on his hands and arms wherever the box had knocked the skin

The internal administration of mercurials has given good results. In my case small calomel powders one-sixth grain once or twice a day in association with sodium bicarbonate could not be continued on account of the sensitiveness of the patient's gums Salvarsan 0 3 gm in oil in intramuscular injections gave good results He was discharged from the hospital service After fourteen days no bullae had reappeared

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THE PRODUCTION OF AN ANTIPOLIOMYELITIS SERUM IN HORSES

BY INOCULATIONS OF THE PLEOMORPHIC STREPTOCOCCUS FROM POLIOMYELITIS *

EDWARD C ROSENOW, M D
ROCHESTER MINN

It is a well established fact that the serum of patients and monkeys which have recovered from poliomyelitis has a neutralizing[1] and protective power[2] against the virus of poliomyelitis Inoculations of virus as well as of cultures of the globoid organism[3] which fail to produce at least abortive attacks of poliomyelitis fail also to produce neutralizing and protective substances in the serum, hence immunity does not result The recent work of Amoss[4] proves further that the globoid organisms of Flexner and Noguchi[5] have indeed little antigenic power The need of immunization experiments along other lines in this disease is therefore apparent

A restudy of the bacteriology of poliomyelitis during the past epidemic has emphasized anew the possible role which bacteria of ordinary size may play in the etiology of this disease A pleomorphic streptococcus or micrococcus having elective affinity for the central nervous system in animals has been isolated quite constantly from the atrium of infection and the central nervous system[6] the brain and cord[7] and the spinal fluid[8] in human poliomyelitis, and from the central nervous system of monkeys paralyzed with virus[9]

It has been shown that under certain anaerobic conditions the organism may become exceedingly small, filterable and anaerobic resembling very closely the globoid organisms of Flexner and Noguchi Moreover, the mechanism by which the large forms become small has been demonstrated[9] Injections of the large form of this organism into two monkeys soon after isolation has rendered the animals immune to virus,[10] a result not obtained with a streptococcus from another source[11]

On the basis of these results, immunization experiments with aerobic cultures of the pleomorphic organism were instituted

Recently Nuzum has reported on the protection of animals against the large form of the organism with the serum from a horse that had been injected repeatedly with aerobic cultures Mathers and Tunnicliff[12] have shown a specific increased opsonic power of the serum toward this organism in poliomyelitis in children Neustaedter and Banzhaf[13] appear to have developed a neutralizing serum in a horse by injecting large doses of filtrates of active virus

I wish now to record the essential facts in the immunization of horses with cultures of the pleomorphic streptococcus, the results of experiments in neutralizing and protecting against virus with the immune serums thus obtained and the findings of agglutination and complement-deviation studies

IMMUNIZATION OF HORSES

The method followed for immunizing horses was that worked out by Flexner and Amoss[14] and Amoss and Wollstein[15] in the production of antidysentery and antimeningitis serum, respectively Advantage was thus taken of the principle first noted by Fornet and Müller,[16] Bonhoff and Tsuzuki,[17] and Gay and his pupils,[18] of the very rapid production of antibodies following injections of antigen at brief intervals

Increasing quantities of the pleomorphic streptococcus were injected intravenously for three consecutive days, this being followed by a rest period of seven days A desensitizing dose of approximately one tenth of the immunizing dose was given on the first day of each period after the first The immunizing dose of the first day of each period was that of the last previous injection The dose on the second and third days of each series was increased approximately by one tenth The temperature was used as a guide to dosage If the temperature which rose soon after the injection had not returned to normal at the time for the next injection, the antigen was not given until it had returned to normal

The bacteria for injection were grown aerobically in ascites-dextrose broth or dextrose broth in tall col-

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* From the Mayo Foundation

* Read before the Section on Pathology and Physiology at the Sixty Eighth Annual Session of the American Medical Association New York, June 1917

[1] Levaditi C and Landsteiner Recherches sur la paralysie infantile experimentale Compt rend Acad d sc 1910 **150,** 131

[2] Flexner Simon and Lewis P A Epidemic Poliomyelitis in Monkeys The Activity of the Virus The Journal A. M A. Jan 1 1910 pp 45-46

[3] Flexner Simon Noguchi Hideyo, and Amoss H L Concerning Survival and Virulence of the Micro Organism Cultivated from Poliomyelitic Tissues Jour Exper Med 1915 **21** 91 102

[4] Amoss H L The Cultivation and Immunological Reactions of the Globoid Bodies in Poliomyelitis Jour Exper Med 1917 **25,** 545 556

[5] Flexner Simon and Noguchi H Experiments on the Cultivation of the Microorganism Causing Epidemic Poliomyelitis Jour Exper Med 1913 **18,** 461 485

[6] Rosenow E. C Towne E. B and Wheeler G W The Etiology of Epidemic Poliomyelitis Preliminary Note The Journal A M A Oct 21 1916 pp 1202 1205

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umns for from eighteen to twenty-four hours at from 33 to 35 C (91 4 to 95 F) After centrifugalization, the supernatant broth was decanted and the bacteria were either washed or directly suspended in salt solution so that 1 c c of the suspension contained the growth from 15 c c of the broth culture Most of the suspensions used were freshly prepared, but in some instances they had been kept in the ice chest for several weeks All strains injected were cultivated for at least two generations, nearly all having been plated at least once on blood-agar Blood-agar cultures were made of all suspensions at the time of injection

Various methods have been employed for maintaining the original immunizing properties Strains have been cultivated under anaerobic and aerobic conditions on blood-agar slants, in deep stabs of ascitic tissue agar and in tall tubes of ascitic tissue fluid Strains from human poliomyelitis have been kept in latent life by preserving the brain and cord substance from animals paralyzed with cultures, in sealed pipets in the ice chest Portions of the brain and cord and large quantities of recently isolated cultures from human and monkey poliomyelitis have been dried in vacuo

EXPERIMENTS

Horse 1—A large black horse, 4 years old weighing approximately 1,600 pounds, was given injections which were begun Nov 2, 1916 and were continued until May 1, 1917 The first three injections contained heat-killed (60 C [140 F], thirty minutes) strains from the brain and cord of human poliomyelitis, the next nine injections contained strains both from human poliomyelitis and paralyzed monkeys, and all subsequent injections contained cultures of the pleomorphic streptococcus isolated from the brain and cord of monkeys paralyzed with virus in the usual way The doses ranged from the equivalent 'of the growth from 160 c c. of broth to as high as the equivalent of the growth from 1,400 c c Test bleedings were made previous to the first injection, and November 2, November 4, December 22, January 8 January 30, March 3, April 3, May 14 and May 16 December 27, three days after the third injection of living bacteria the horse had fever, and his hind extremities were so weak that he could scarcely get up The fever and weakness soon disappeared April 5, a suspension containing staphylococci was injected accidentally April 7, the horse had fever and developed arthritis of the right hock April 9, he had arthritis of the knee of the left fore leg April 17, the fever had disappeared, the arthritis had largely subsided, and the injections were resumed Dead cultures, however, were now injected for the next three series of injections The last dose was given, May 1, and consisted of the growth from 600 c c. of broth of a strain in the third generation from a recently paralyzed monkey May 14, the animal was unable to get up on account of weakness in the hind extremities It was bled 6,000 c c May 16, weakness of the hind extremities still prevented it from getting up It was then etherized and bled to death, approximately 36,000 c c of blood being obtained A moderate amount of serous fluid was found in the left ankle joint and the right hock There were no lesions of the viscera except a few subendocardial hemorrhages in the right ventricle The vessels in the gray matter of the lumbar cord were hyperemic Cultures of the blood yielded a staphylococcus, and those from the spinal cord showed diphtheroid bacilli Frozen sections of the lumbar cord revealed little or no round-cell infiltration

Horse 2—A large bay, 8 years old, weighing approximately 1,200 pounds, was injected at intervals, according to the method described, with live cultures from human and monkey poliomyelitis in relatively massive doses from November 22 to December 13 During the eighth injection (December 13) he developed marked symptoms of acute anaphylactic shock and died in a few minutes He was bled just previous to injection and soon after death

Horse 3—A medium-sized bay, 3 years old, weighing approximately 1,200 pounds, has been injected according to schedule since Jan 30, 1917 The pleomorphic streptococcus from human poliomyelitis has been employed exclusively The first six injections consisted of suspensions of the dried bacteria prepared last summer from strains recently isolated from the brain and cord Later, there were added suspensions of strains found to be agglutinated in high dilution by the serum of Horse 1 and grown continuously on blood-agar, in deep stabs of ascitic tissue agar, or filed away last summer in sealed pipets containing the aspirated brain substances of rabbits and guinea-pigs paralyzed with cultures Except for alarmingly severe symptoms on several occasions immediately following the injections, this horse has remained well Test bleedings were made, January 30 (before injection), March 2, April 3 and May 14

THE EFFECT OF IMMUNE HORSE SERUM ON VIRUS IN VITRO

In these experiments the technic followed was that used by other workers in this field Five per cent emulsions of physiologic sodium chlorid solution of fresh or glycerinated brain and cord were prepared by grinding the material in a mortar with sterile quartz sand, filtering it repeatedly through paper or in some instances passing it through a Berkefeld filter The filtrate was thoroughly mixed with the serum to be tested, and, for controls, with the sodium chlorid solution and the corresponding normal serum It was then placed in the thermostat for two hours and in the ice chest for from eighteen to twenty-two hours All monkeys (*Macacus rhesus*) were injected intracerebrally, under ether, with 1 c c of the respective mixtures In each series of experiments the monkeys chosen were of approximately the same weight

TABLE 1—THE EFFECT OF VARIOUS IMMUNE SERUMS ON VIRUS

Monkey	Inoculation	Result
103	Virus + NaCl solution, control	Mild symptoms, resisted second inoculation
93	Virus + normal monkey serum, control	Mild symptoms, resisted second inoculation
102	Virus + normal horse serum, control	Severe symptoms etherized, 13th day
94	Virus + virus immune serum Monkey 24	Remained well
95	Virus + culture immune serum, Monkey 43	Severe symptoms, recovered
96	Virus + culture immune serums, Monkeys 53 and 61	Remained well
97	Virus + culture immune serum Rabbit 1078	Severe symptoms etherized
98	Virus + acquired immune serum, Human 802	Remained well
99	Virus + acquired immune serum, Human 784	Remained well
100	Virus + culture immune serum, Horse 1	Remained well
101	Virus + culture immune serum, Horse 1, 1 1,000	Remained well, paralyzed by second inoculation

The experiment summarized in Table 1 was begun Feb 7, 1917 The emulsion was prepared from fresh brain and cord of Monkey 85, which became paralyzed on the eighth day following the injection of a virus which had been passed successively through six monkeys The first three experiments (Monkeys 103, 93 and 102), served as controls All developed mild but unmistakable symptoms of poliomyelitis Monkey 94, injected with virus digested with serum from Monkey 24, which had recovered from poliomyelitis, served as an additional control in that it showed the technic to be adequate for the destruction of virus by serum known to have such action Monkey 95 developed severe paralysis, the serum of Monkey 43 not having destroyed the activity of the virus Monkey 43 had been injected previously with a strain of streptococcus grown large from typical globoids and was found later not to,be immune to virus Monkeys 53 and 61, whose serums destroyed virus, as evidenced in the experiment on Monkey 96, had been immunized with cultures of the pleomorphic streptococcus recently isolated from paralyzed monkeys Their serums agglutinated specifically the pleomorphic streptococcus from both human and monkey poliomyelitis The serum of Rabbit 1078, which was used in the experiment on Monkey 97, had no digestive action on virus Rabbit 1078 had been injected repeatedly with the heat-killed pleomorphic streptococcus When used its serum had been kept in the ice chest for forty days The serums used in the next two experiments (Monkeys 98 and 99) were obtained from cases of sporadic anterior poliomyelitis, and destroyed the activity of the virus The serum used to digest the virus in the last two experiments (Monkeys 100 and 101) was obtained from Horse 1, Jan 30, 1917, eight days previously It destroyed the activity of the virus completely, even in a dilution of 1 1,000

TABLE 2—EFFECT OF IMMUNE HORSE SERUM ON VIRUS

Monkey	Inoculation	Result
112	Virus + NaCl solution control	Mild symptoms recovered resisted second inoculation
113	Virus + normal horse serum control	Mild symptoms recovered died from ulcerative colitis 35th day
114	Virus + immune serum Horse 1	No symptoms died of ulcerative colitis 21st day no infiltration
115	Virus + immune serum Horse 1 1 1 000	No symptoms paralyzed by second inoculation
116	Virus + serum from sporadic poliomyelitis (521)	No symptoms paralyzed by second inoculation

In the experiment summarized in Table 2, the same virus after passage through one more monkey (Monkey 106) was used while fresh The experiment was again controlled both positively and negatively The controls with sodium chlorid solution and normal horse serum developed poliomyelitis, but the control with human poliomyelitis serum did not The horse serum used was obtained the day previously (March 2, 1917) from Horse 1 As in the *previous* experiment, it destroyed activity of the virus in dilutions of both 1 1 and 1 1,000

TABLE 3—THE EFFECT OF IMMUNE HORSE SERUM ON FILTERED VIRUS

Monkey	Inoculation	Result
141	Virus + NaCl solution control	Symptoms 5th day completely paralyzed, 6th day etherized
143	Virus + Immune serum Horse 3	Symptoms 8th day severely paralyzed 10th day recovered
144	Virus + Immune serum Horse 3 1 1 000	Symptoms 6th day completely paralyzed 7th day etherized
146	Virus + Immune serum Horse 1	Symptoms 13th day severely paralyzed 16th day, recovered
145	Virus + Immune serum Horse 1 1 1 000	Symptoms 5th day completely paralyzed, 6th day died 7th day

The experiment summarized in Table 3 was begun, April 15, 1917 The effect of the serum from both Horse 1 and Horse 3 was tested against highly active glycerinated virus that had been passed through a Berkefeld filter The control (Monkey 141) became completely paralyzed in six days, and was etherized when respiratory failure was imminent The activity of the virus appeared to be diminished but not wholly destroyed by an activated mixture of serums from Horse 3, as shown by the experiment on Monkey 143 In dilutions of 1 1,000 the serum had little or no effect (Monkey 144) In the experiment on Monkey 146, an activated mixture of the serum from Horse 1 (January 30, March 3 and April 3) appeared to diminish the activity of the virus, as manifested by a delay of eight days over the control for the onset of paralysis, by the comparative mildness of the paralysis, and by the fact that the monkey recovered In dilutions of 1 1,000 this mixture of serums had no effect (Monkey 145)

In an experiment performed Feb 20, 1917, the inactivated serum from Horse 1, which was obtained January 30 and which digested virus when fresh (Table 1) had only a slight destroying power over highly active fresh virus, the onset of the paralysis in two monkeys being delayed only one and two days, respectively, over that of the control April 23, the serums of the bleedings of Horse 1 from January 30 to April 3 were mixed, and on April 24 the mixture was passed through a Berkefeld filter This filtered mixture in one experiment was found not to diminish the activity of the virus It appeared, then, that when fresh, the serum obtained January 30 and March 2 from Horse 1, immunized chiefly with the pleomorphic streptococcus from monkeys paralyzed with virus, had the power to destroy the activity of fresh, moderately virulent virus completely and to *inhibit* the effect of highly virulent glycerinated and filtered virus, a power which it appeared to lose on standing The serum from Horse 3, immunized entirely with strains from human poliomyelitis isolated a long time previously, had no apparent effect.

TABLE 4—PROTECTION OF MONKEYS AGAINST POLIOMYELITIS WITH IMMUNE HORSE SERUM

Monkey	Inoculation	Treatment	Result
89 2 3 kg	0 5 c c Virus 85	Intraspinal and intravenous injections of immune serum Horse 1	No symptoms for 56 days slight symptoms following second inoculation
90 3 8 kg	1 c c Virus 85	Intraspinal and intravenous injections of immune serum Horse 1	No symptoms for 56 days severe paralysis, 9th day after second inoculation
91 2 2 kg	0 5 c c Virus 85	Alternate subcutaneous and intravenous injections of heat killed pleomorphic streptococcus	Severe paralysis 11th day no improvement following injection of immune serum Horse 1 died of colitis 19th day
92 2 5 kg	0 5 c c Virus 85	Subcutaneous injections of heat killed pleomorphic streptococcus	Severe paralysis 13th day recovered following injections of immune serum Horse 1
147 3 5 kg	0 5 c.c Virus 889	None control	Symptoms 5th day severe paralysis 7th day prostrate 10th day etherized
149 3 6 kg	0 5 c c Virus 889	One intravenous injection of sensitized pleomorphic streptococcus 11 days previously	Symptoms 12th day severe paralysis 13th day recovered
173 1 8 kg	0 5 c c Virus 165	None control	Severe paralysis 7th day apparent protection following injection of immune serum Horse 1 recovered
174 1 8 kg	0 5 c c. Virus 165	Intravenous injections of immune serum Horse 3	Severe paralysis 10th day recovered
175 1 7 kg	0 5 c c. Virus 165	Intravenous injections of immune serum, Horse 1	No symptoms well 24th day

PROTECTION OF MONKEYS AGAINST EXPERIMENTAL POLIOMYELITIS WITH IMMUNE HORSE SERUM

In Table 4 are summarized three series of experiments which were undertaken to determine the protective power of immune horse serum against intracerebral injections of virulent virus The serum from Horse 1 used in the first series of experiments, begun February 7, was obtained, January 30

Simultaneous intraspinal injections of 2 c c and intravenous injections of from 5 to 10 c c were made for two consecutive days Five additional intravenous injections of from 5 to 14 c c were made every second or third day The animals were completely protected, as shown by the controls (Monkeys 91 and 92) which were injected with a vaccine They succumbed to poliomyelitis, however, following a second injection two months later, a further proof that infection had not occurred Additional evidence of the activity of the virus is afforded by the results recorded in Table 1, this series of monkeys having been inoculated with the same virus

In the experiments on Monkeys 147 and 149 (outlined in Table 4), the effect of a single immunizing dose of the sensitized pleomorphic streptococcus was tested against a heterogeneous virus of high virulence[17] A mixture of strains from human poliomyelitis isolated last summer and recently isolated strains from paralyzed monkeys were grown in dextrose broth, washed in sodium chlorid solution and suspended in the filtered mixture of the serum from Horse 1 The bacteria were agglutinated almost immediately, and after the suspension had been kept at 35 C (95 F) for two hours were washed in sodium chlorid solution Five c c of a rather dense suspension were then injected intravenously That a degree of protection was afforded was indicated by a delay of seven days in the onset of the paralysis over that of the control, by the comparative mildness of the symptoms, and by recovery of the animal

Agglutination of pleomorphic streptococcus from human poliomyelitis This strain was not used in the immunization of horses Tubes 1 to 3 contain normal horse serum, Tubes 5 to 9, immune serum from Horse 1, Tubes 11 to 14, immune serum from *Horse 3* The dilutions of serum and antigen (dextrose broth culture) are 1 1, 1 10 1 100, etc , respectively, in each series Note agglutination in low dilutions and its absence in higher dilutions by the normal horse serum, and the absence of agglutination in low dilutions and marked agglutination in high dilutions by the immune serums

In the last series of experiments, summarized in Table 4, the serums were obtained on the day the experiments were begun, May 14 Intravenous injections of 10 c c were made immediately after inoculation of virus, the following day and then every second day for four additional injections The serum from Horse 3 had slight protective power, there being a delay of only three days over the control in the onset of symptoms (Monkey 174) The serum from Horse 1, on the other hand, completely protected Monkey 175, and two intravenous injections of 12 c c each appeared to protect the control (Monkey 173) from a fatal attack

The effect of the curative properties of these serums after paralysis had begun has been tested, in all, in twenty-four monkeys Simultaneous intraspinal (2 c c) and intravenous (from 5 to 12 c c) injections were given in three instances, and intravenous injections (from 10 to 12 c c) in the rest In no instance were injections made oftener than once in twenty-four hours If the serum had been kept for some time in the refrigerator, it was usually activated with guinea-pig complement just previous to injection

If the serum appeared either to lessen the symptoms or to arrest the paralysis, or if the treated animals recovered when the untreated controls died of respiratory failure or surely would have died if they had not been etherized, the result was put down as favorable If it had no apparent effect, it was put down as indifferent

Out of seven treated monkeys in which the results were indifferent, four showed severe ulcerative colitis, two marked tuberculosis and one meningitis due to hemolytic streptococcus These, therefore, were not suited for testing the efficacy of the serum Of the remaining seventeen, the serum from Horse 3 was injected into four (once in one, twice in two and three times in one) with no apparent effect on the course of the disease in any instance Three of these monkeys died, and one was etherized when respiratory failure seemed imminent The remaining thirteen were treated with the fresh or activated serum from Horse 1 The results were indifferent in three and favorable in ten All of the former received only one injection Of the latter, two received one injection, two, two injections, one, three injections, one, four injections, three, five injections, and one seven injections All of the ten recovered, with varying degrees of residual paralysis

The experiments on the protective and curative power of these immune serums, therefore, indicate that while the serum from Horse 3 had little or no effect, the serum from Horse 1 had definite protective and curative power, a finding directly in accord with the results of the neutralization experiments

PROTOCOLS OF EXPERIMENTS

Protocols of the last three experiments summarized in Table 4 will serve to illustrate

Experiment 1—*Control*—Monkey 173, *Macacus rhesus,* 1 8 kg

May 14, 1917 Etherized, 0 5 c c of glycerinated virus (751$^{\text{u}}$) from Monkey 165 injected into right frontal lobe

May 15-18 Appeared well

May 19 Appeared irritable, no weakness

May 20 Irritable and undoubtedly weak in left leg

May 21, 8 30 a m Tremor of head and muscles of hind extremities, unable to bear weight on legs, and dragged the right. 4 p m Undoubtedly weaker, dragged both legs, had tremor and weakness of muscles of left arm Twelve c.c. of immune serum from Horse 1 (obtained May 14) injected intravenously

May 22, 8 a m. Definitely weaker in hind extremities, no extension of paralysis in arms 3 p m Injection of serum repeated

May 23 Only slightly weaker in hind extremities, no demonstrable weakness in arms

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[17] Kindly sent me by Dr W E Wayson, of the Public Health Service, Washington, D C.

May 24 Right arm badly paralyzed, hind extremities completely flaccid, left arm also weak but monkey could move it in all directions

June 2 Marked improvement, the tremor of the head had disappeared, arms stronger, animal pulled himself on perch, able to sit up but legs still flaccid

June 7 Improved

Experiment 2—*Attempt to protect against virus with serum from Horse 3* Monkey 174 *Macacus rhesus,* 1 9 kg

May 14 1917 5 p m Etherized, 0 5 c c glycerinated virus (751") from Monkey 165 injected into right frontal lobe 5 10 p m Twelve c c immune serum, Horse 3 (obtained May 14) injected intravenously

May 15 12 m Appeared well, injection of serum repeated

May 17, 9 30 a m Appeared well, injection of serum repeated

May 19, 3 30 p m Appeared well, injection of serum repeated

May 20 Appeared well, no weakness

May 21 7 30 a m Appeared slightly irritable, but no weakness 4 p m Injection of serum repeated

May 22 3 p m Extremely irritable fur roughened, weakness of hind extremities, injection of serum repeated

May 23 Weaker very tremulous

May 26 Marked paralysis of all extremities, some power in left arm, tremor of head still present

June 2 Severe paralysis of all extremities, can move left arm slightly, tremor of head still present but less marked

June 7 Condition much the same as on June 2

Experiment 3—*Attempt to protect against virus with serum from Horse 1* Monkey 175, *Macacus rhesus,* 1 8 kg

May 14 1917 5 20 p m Etherized, 0 5 c.c. of glycerinated virus (751") from Monkey 165 injected into right frontal lobe 5 30 p m Twelve c.c of immune serum from Horse 1 (obtained May 14) injected intravenously

May 15 12 m Appeared well, injection of serum repeated

May 17 Appeared well, injection of serum repeated

May 19 Appeared well, injection of serum repeated

May 20 Appeared well, no weakness

May 21, 7 30 a m Appeared well, no weakness 4 p m Injection of serum repeated

May 22, 3 p m Appeared well, injection of serum repeated

May 23 Appeared well no weakness

June 7 Has appeared well and has shown no symptoms of poliomyelitis at any time

AGGLUTINATION AND COMPLEMENT-DEVIATION EXPERIMENTS

Numerous agglutination experiments have been made with the pleomorphic streptococcus, with the serums from immunized horses, with the serums from patients who have recovered from poliomyelitis, and with the serums of monkeys paralyzed with virus As controls, normal serums of these species and numerous strains of streptococci from sources other than poliomyelitis have been used

The agglutinating titer of the serums of the horses (especially Horse 1) has become very high, agglutinations having been obtained in dilutions as high as 1 1,000,000 The serums from both Horse 1 and Horse 3 agglutinated alike the strains from human and monkey poliomyelitis as shown in the accompanying illustration By the use of these serums it is now possible to differentiate the strains which appear to bear etiologic relation to poliomyelitis from strains of streptococci found in tonsils which undoubtedly have no such relation, and from strains of streptococci which may be found occasionally in the nervous system of uninoculated animals

The serums from twenty-three patients who had recovered from poliomyelitis, and the serums from twenty-seven monkeys which became paralyzed following injections of virus have been found to agglutinate specifically the pleomorphic streptococcus isolated both from poliomyelitis in man and from experimental poliomyelitis in monkeys The serums from forty-three persons who have not had poliomyelitis, and the serums from twenty-seven normal monkeys failed entirely to agglutinate these strains, or agglutinated them in lower dilutions than the respective immune serums Only two of a large number of strains of streptococci from a wide range of sources were agglutinated by poliomyelitic serums to a degree comparable to the agglutination of the pleomorphic streptococcus Antipneumococcus, antistreptococcus, antimeningococcus and antigonococcus serums had little or no more agglutinating power over these strains than normal horse serum

Complement-deviation tests made by Dr Sanford, while incomplete, show that both Horse 1 and Horse 3 have developed specific antibodies that in high titer have complement-deviating properties with the antigens made from strains isolated from human poliomyelitis and from experimental poliomyelitis in monkeys Moreover, by using these immune horse serums for determining the properties of bacterial suspensions from various sources, it has been found in many instances that strains isolated from both human and monkey poliomyelitis have marked antigenic properties, while similarly prepared antigens from other sources do not have these properties

SUMMARY

It has thus been shown that

1 The serum of horses immunized with aerobic cultures of the pleomorphic streptococcus from both poliomyelitis in man and experimental poliomyelitis in the monkey developed specific antibodies, agglutinins and complement-deviating properties, the agglutinins appearing to be present in large amount because the serums cross-agglutinate these strains specifically in very high dilutions

2 The serum of patients and monkeys which have recovered from attacks of poliomyelitis cross-agglutinates specifically many, but not all, of these strains in the lower dilutions

3 What is of greatest significance, the serum of the horse immunized with recently isolated strains from experimental poliomyelitis in the monkey appears to have developed neutralizing, protective and curative power against the virus of poliomyelitis

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ABSTRACT OF DISCUSSION

Dr. Myer Solis-Cohen, Philadelphia In the Jules E. Mastbaum Research Laboratory of the Jewish Hospital, Philadelphia Dr George D Heist and I made some immunologic studies of the streptococci found in poliomyelitis We made agglutination tests which in a way are in accord with Dr Rosenow's results, although we do not regard streptococci as lending themselves so well to such a test We also studied the opsonic action of poliomyelitic serum on these streptococci With the strain we employed, one isolated by Kolmer and his associates, we found an opsonic index above normal in all of the forty-five poliomyelitic serums we tested

With the object of determining whether it is one strain of streptococci or several so commonly found associated with acute anterior poliomyelitis, we secured cultures also from Rosenow, Mather and Nuzum, who have isolated the streptococcus from poliomyelitis material in various parts of the country We have grown these cultures side by side on the same mediums, and have applied to them fermentative and other cultural tests found useful in the classification of streptococci We immunized rabbits with strains from the different sources, and with the immune serums so obtained performed opsonic tests on each strain to see if a serum giving phagocytosis with the strain with which the rabbit was injected would act similarly with the other strains In working with pneumococci, for instance, we have found, as have others, that a Type I serum contains thermostable opsonin for Type I only and not for Type II or III With these same immune rabbit serums, we also performed cross-agglutinations, which gave results similar to those obtained in our opsonic tests

With a few slight variations we have found that the strains sent us by the different workers are the same organism Culturally and serologically there appears to be very little difference between the strains from different sources

Dr Carroll G Bull, New York Dr Rosenow's paper interests me very much, since I have carried out a large number of experiments along this line. My results and interpretations were diametrically opposed to those of Dr Rosenow Streptococci or "poliomyelitis cocci" were isolated from the tonsils and central nervous tissues of patients having acute poliomyelitis and tested for pathologic effects on rabbits, guinea-pigs, cats, dogs and monkeys To control these experiments, streptococci were isolated from a large number of nonpoliomyelitic patients and tested on rabbits and monkeys The two series of cocci manifested similar pathogenetic properties, producing brain abscesses, purulent meningitis, kidney abscesses, arthritis and paralysis, but not poliomyelitis Monkeys that recovered from the initial inoculations were given several subsequent injections to increase their immunity to the cocci The serums of the immunized monkeys possessed specific opsonins and agglutinins to a marked degree, but they did not neutralize poliomyelitic virus in vitro, and these monkeys were just as susceptible to intracerebral inoculation of the virus as normal monkeys These experiments were made not only once, but many times, and in no instance was there the slightest evidence that these cocci are immunologically related to poliomyelitic virus or have any relation to the disease

Dr Amoss has just completed some experiments which show that poliomyelitic virus is not only noninfectious for rabbits, but does not survive in the brain of these animals as long as seven days

Dr Rosenow's protection experiments with immune and normal horse serums are not convincing The controls are not satisfactory We cannot say that we have protected a monkey against a five-day virus unless a control animal is inoculated with the same emulsion or filtrate at the same time and succumbs to the infection within that limit of time Mild symptoms following an intracerebral inoculation mean little or nothing The control must come down Salt solution and normal horse serum sometimes neutralize a filtrate of the virus Agglutination tests with streptococci and allied organisms are very unsatisfactory, since the same strains tested at different times with the same serums give different results It is possible that I failed to obtain the true "poliomyelitis coccus" In this case, paralysis and nervous infections were caused by other cocci, and these symptoms and lesions have no specific significance

Finally, pyogenic lesions are difficult to reconcile with the pathology of poliomyelitis, since these complications have never been observed in cases of poliomyelitis in man or monkey A disease as definite and self-limited as poliomyelitis must have a definite and fixed etiology

Dr. A. I Rubenstone, Philadelphia Is it not possible that in immunizing experiments the presence of the brain serum has an enormous influence in protecting against toxicity? I have noticed that an injected virulent streptococcus mixed with a normal serum does exert a protective action

Dr E C Rosenow, Rochester, Minn I am delighted to hear that the strains I sent Dr Solis-Cohen produced immune bodies which were specific for his strains from poliomyelitis

Regarding the objections raised by Dr Bull, I must say that the neutralizing and protective experiments were carefully controlled, and while rather weak virus was used in some of the experiments, highly virulent virus was used in others One monkey was protected against a five or six-day virus, and a virus producing paralysis in this short time is conceded by all to be highly virulent. The agglutination experiments were thoroughly controlled and were done in sufficient numbers to exclude error which might be due to variations in agglutinability of streptococci in general

Regarding the inability of Dr Bull to obtain the same results in experiments on small animals, I need only to point out differences in the methods used as given in his report. He has grown the bacteria for injection chiefly on the surface of ascites dextrose agar, we have grown them chiefly in deep tubes of ascites dextrose broth with or without tissue. All but 10 per cent of his injections were made with "strepto cocci" in the second or third culture generation, the majority of animals in our experiments received the primary culture or emulsions of tonsils, or the pus from abscesses in tonsils, and when pure cultures were injected, painstaking effort was made to obtain the more or less characteristic "pleomorphic streptococcus" His report includes only tonsil strains from human poliomyelitis, and only one strain from fresh brain and cord from a monkey paralyzed with virus adapted to this species, we have obtained positive results with both tonsil and brain and cord strains from fresh material from human poliomyelitis He made his experiments during cold weather, as the epidemic was nearly over, we made ours in two widely separated localities during hot weather at the height of the epidemic He injected twelve guinea-pigs weighing from 400 to 500 gm, with negative results, we injected hundreds weighing from 100 to 350 gm, with positive results in many

Dr Bull appears to expect "streptococci," without strict regard to their infecting or other qualities, although from poliomyelitis, to protect monkeys against virus We have already emphasized in a published report that ordinary streptococci do not protect monkeys against virus, but this appeared to be so in two experiments with the pleomorphic streptoccus when in the proper condition

The methods and conditions of experimentation will have to be more alike before conclusions can be drawn The fact is that we have proved that in epidemic poliomyelitis there is present in the infection atrium and central nervous system a streptococcus-like organism which has peculiar properties One of these is the tendency to localize electively in the central nervous system of animals producing lesions and paralysis, a property which it soon loses on artificial cultivation These facts, together with the ones given in the paper under discussion, bear out the suggestion made previously that the pleomorphic streptococcus or micrococcus in some way bears etiologic relation to epidemic poliomyelitis

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Labor in the Warring Countries—The National Children's Bureau in the interest of the children and youth of our country has been making a study of labor in the warring countries, under war conditions, and issues timely warning so that the unfortunate experiences of those countries may not be repeated in the United States now at war French Minister of Munitions Thomas is quoted as saying

"The experience of war time has only demonstrated the necessity—technical, economic, and even physiologic—of the labor laws enacted before the war In our legislation secured in time of peace we shall find the conditions for a better and more intense production during the war"

In France and also in England earlier standards of hours, which were relaxed in the hurry of the first months of the war, are being restored, not only, it is said, to protect the health of the workers, but also for the sake of industrial efficiency, present and future Canada, Australia and New Zealand are said to have maintained their labor standards with little variation The status of this question in France at present is set forth in the official bulletin (July 31, 1916) on the uses of war as follows

> With the continuance of the war it becomes necessary not only to find the best possible disposition of the forces available for our war industries but also to avoid every cause for exhaustion or weakening of the labor employed in our factories There is a close relation between the conditions in which we place our workers and the improvement of the increase of our war products For the very sake of the national defense we must conserve all their physical strength for the workers who are responsible for the manufacture of arms and for the output of our factories

PROPHYLACTIC USE OF VACCINES IN THE GREAT WAR*

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The diseases which are perhaps most detrimental to the efficiency of military bodies are those of the intestinal tract. To the ubiquitous dysentery and typhoid fever are added in Europe the paratyphoid fevers and cholera. It is particularly to combat these diseases that boiling of the drinking water, chlorination of the water supply, disinfection of the dejecta, and separation of the infected with or without symptoms, together with earlier and accurate bacteriologic diagnosis, have been so intensively and thoroughly practiced in the military bodies now fighting. With the manifold exigencies of war, however, these precautions are not sufficient, and the individual fighting unit must be given detailed attention. The failure of these general sanitary measures during this war involving trench fighting together with previous military experience with antityphoid vaccination, was the incentive for attempts at immunization of the individual. Hence, in March, 1914, France adopted Labbe's legislation for compulsory vaccination against typhoid, and the execution of the law was vigorously prosecuted in October, 1914. The Russian Medical Association proposed similar vaccination in their army early in 1915, and the medical as well as some military authorities of England advocated compulsory antityphoid vaccination in the armies of Great Britain, at the beginning of the war. Reports show that the troops on the west front of the German army were vaccinated against typhoid in the late fall and winter of 1914 and 1915.

Anticholera vaccination has been practiced among those troops which were exposed in endemic areas, such as exist on the eastern front of the war zone.

Antidysentery vaccination has apparently not been widely practiced in the armies of the belligerents.

The problems involved in the attempts to immunize soldiers against these scourges have been summarized and emphasized by Theobald Smith[1]. Some facts to which he gives prominence are:

> The object of immunization is to raise the resistance of the body. . . . No kind of vaccination is invariably and completely protective. We may, however, hope to convert a fatal into a nonfatal attack, a mild attack into one so mild as to remain unrecognized, or into complete protection.
>
> The essential factor to be kept in mind is to raise such resistance with the least injury to the subject.
>
> There is a clearly marked distinction between groups of organisms as to the capacity of the hosts to be immunized experimentally.
>
> The object of immunization is to suppress the invader, the problem underlying is to find the precise aggressive weapons which prevent the invader from multiplying.

The principals of the group of organisms which concern us are those to which the hosts lend themselves well to experimental immunization, and one of the precise aggressive weapons is that which gives rise to the immune substances in the host, namely, the antigen.

ANTIGEN

The antigens or vaccines used in the various armies and military bodies have been as numerous as are the peoples at war. The preparation of these vaccines, however, has had for its guiding principle the conservation of all the "immunogenic qualities" of the organisms involved, and the destruction of their infectivity. The latter has necessitated the use of dead or greatly attenuated bacteria.

The attenuation or killing has been variously accomplished by heating, by the application of chemicals (chiefly phenols and ether), by autolyzing, and by sensitizing with an immune serum. Conservation of the "immunogenic" substances (some thermolabile) has been accomplished by using that degree of heat which closely approximates the thermal death point of the organism, erring on the side of too low a degree, and adding some chemical disinfectant as a preservative, by the use of chemicals alone, by autolysis, or by sensitization.

The English have made use of Wright's typhoid vaccine as modified by Leishman. This vaccine is monovalent (containing the one strain of the typhoid bacillus, the Rawling strain). The choice of this strain was dependent apparently only on its adaptability to homogeneous emulsification. The cultures are grown in plain broth for forty-eight hours, heated to 53 C., and made up to contain a 0.5 per cent. dilution of compound solution of cresol. The vaccine contains a billion organisms to the cubic centimeter. Later the cultures were grown on agar and emulsified in salt solution.[2]

The Canadian contingents, at least some of them, were originally inoculated with vaccines made from agar cultures.

The French have used several vaccines, principally those of Chantemesse, Vincent and Besredka. Vincent states that the laboratory at Val-de-Grâce has supplied his vaccine to the armies of Greece, Italy, Serbia, Spain and Turkey. Vincent's vaccine is polyvalent (containing ten strains of the typhoid bacillus). The cultures are autolyzed in salt solution, and killed by exposure to ether for from thirty-five to forty minutes, which procedure extracts simultaneously many of the lipoidal substances contained in the organism. Vincent considers these lipoidal substances febrigenic and responsible in part for the local reactions.

The vaccine of Chantemesse is monovalent, made with agar cultures of from eighteen to twenty hours' incubation, emulsified in salt solution, and heated to 56 C. Tricresol is added to make a final dilution of 0.25 per cent. The vaccine contains a billion organisms per cubic centimeter.

Besredka's method is founded on the employment of a living, sensitized vaccine. The typhoid bacillus is grown for forty-eight hours on agar, emulsified, and antityphoid serum added. After twenty-four hours' exposure to the serum, the living organisms are decanted and washed, and then emulsified anew in physiologic sodium chlorid solution. The use of Besredka's vaccine seems to be limited.

Goldscheider states that Marx's vaccine was used in immunizing one of the divisions of the German army on the west front. This vaccine is apparently a heat-killed culture, emulsified in salt solution, to which phenol is added to make a final dilution of 0.5 per cent. The official German vaccine is made from agar cultures, suspended in salt solution, killed at 55 C, and sufficient phenol added to make 0 5 per cent Each cubic centimeter contains one third of an oese

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* Read before the Section on Pharmacology and Therapeutics at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

[1] Smith, Theobald: Underlying Problems of Immunization, Address before the Congress of American Physicians and Surgeons, 1916.

[2] Personal communication to the author.

The Russians originally employed Wright's antityphoid prophylactic, but later used a polyvalent vaccine

The choice of strains is dependent on several factors Some authors elect the use of a strain from the local epidemic, but all are in accord that strains should be chosen with regard to their antigenic value Toxicity is considered desirable by some and undesirable by others This disparity of opinion is based on the question of the relation which toxicity has to "immunogenic" qualities Estimates of these qualities are at present based on tests of agglutinogenic and protective power in experimental animals

The experience of the English and Canadians, and thus far of the Americans, shows no preferential efficacy of a polyvalent, as opposed to a monovalent typhoid vaccine

Dosage—The dosage of these vaccines varies but slightly in the total amount given, and in the intervals after which the individual doses are administered The total amount inoculated ranges from 1,600 million to 4,000 million bacteria, in the practice generally in vogue, and the intervals of dosage vary from five to eight days While this is stated as the practice, it must be recalled that many of these vaccinations are most irregular in the periodicity of dosage, and incomplete in the number of doses, and consequently in the total amount administered This irregularity and incompleteness of the vaccination occurs through military exigency, fabrication and illness on the part of the subjects, and, to some extent, on a lack of appreciation of the necessity for thoroughness by the sanitary officers

The number of doses varies from two to four or more It is the opinion of several authors who have made analytic studies of the effects of the vaccination that three at most, and frequently two inoculations are as effective as four or more

There seems, however, to be a growing tendency to increase the total amount of antigen, in the belief, as Weber concludes from his findings in experimental work, that "the mass of vaccine injected is important, not only from the point of view of the solidity of the immunity, but from the precocity of its appearance, the more the dose is increased the more sure is the animal inoculated to have an immunity which will resist infection"

Fiessinger, who writes from an apparently large experience, concludes his studies with the admonition, "Do not vaccinate lightly"

Widal and Salimbéni recommend large doses, even as much as 10 billion organisms at a single dose, and conclude from their expermental observations on man that the reaction is not more severe than with lighter dosage Their advocacy of a single injection of a large amount is with the obvious appreciation of the necessary irregularity and incompleteness of a vaccination divided into several administrations, over periods which permit troops being moved great distances from the place of initial inoculation

Reinoculation—The period after which reinoculation is practiced has been dependent largely on Wright's observations in India, and has varied usually from two to four years Experience has apparently been contrary to inoculation at such long intervals, and the present practice seems to be a revaccination at from eight months to a year No reports of a second revaccination were found, although there are reports of individuals who gave an anamnesis of typhoid at 16 years of age, in their early twenties, and again in the army in their early thirties

VACCINATION

Methods of Vaccination—These are chiefly parenteral, though Lumiere and Chevrotier have advocated, and used enterally, gelatin-coated pills of a dried mixed polyvalent typhoid-colon vaccine This method has not yet had an extensive use, but the English commission has reported unfavorably concerning its efficiency The advantages of such a method of administration are self-evident, provided it were effective

The technic of the parenteral administration is that of hypodermic injection, practiced aseptically The sites most frequently chosen are the subclavicular, deltoid and subspinous areas The skin is painted with tincture of iodin, or washed with alcohol, 60 per cent, and injection is made subcutaneously With a battery of a few syringes and several needles, which can be intermittently boiled, several hundred men can be inoculated within a short space of time Rubber-capped phials or bottles are used as containers for the vaccine The Canadians, having exhausted their supply of rubber caps, used finger cots rolled up to make a strong collar for the neck of the bottle, and paraffined these for storage and shipment Hermetically sealed ampules are also used as containers of the vaccine

Results of the Vaccination—The results of these various vaccinations may be analyzed from the standpoint of the immunization problems emphasized by Smith In other words, what are the immediate effects on the host, and what are the effects on the course of the disease, and on its dissemination, since there is no absolute immunity?

Reaction of the Host—The effects of vaccination vary, from those of local reddening and edema, persisting for twenty-four hours and progressively disappearing, to a severe general reaction, marked by shock and collapse The percentage of general reactions is perhaps well illustrated by the observations of Maurange on 39,215 injections, he found the results given in Table 1 As will be noted, he does not define the various grades of reactions, but the high percentage showing no reaction would suggest that the operation was comparatively harmless

TABLE 1—PERCENTAGE OF REACTIONS OBSERVED BY MAURANGE

Types of Reaction	Typhoid Percentage	Para B Percentage
None	92 23	98 59
Feeble	6 18	1 41
Moderate	1 40	0 00
Pronounced	0 19	0 00

The general reaction is usually accompanied by fever, the most common rise being to 38 C (100 4 F) or slightly higher The symptoms occur within a few hours, beginning with depression, headache, anorexia, pains in the joints, and diarrhea The most persistent of these symptoms is headache, but malaise frequently lasts forty-eight hours, and may be accompanied by anorexia This degree of reaction is common in from 4 to 10 per cent of robust men

Severe reactions are usally attended by fever of several degrees, and by one or more of the following symptoms rigors, vomiting and diarrhea, catarrhal icterus, prostration and collapse These reactions may persist for as long a period as fifteen days, and may occur after any one of the individual inoculations The percentage of occurrence, however, is very small To avoid these reactions it is necessary to be alert as to the contraindications to the vaccination

Contraindications—The age of the subject is of but little importance as a contraindication Maurange states that he has carried out inoculations in individuals of from 4 to 46 years of age Children show no reaction

Contraindications may be divided into physiologic and pathologic groups The most frequently occurring physiologic condition to be regarded as a contraindication is fatigue It has been noted by most authors that men who are worn out from work and lack of food are prone to have a more severe reaction

Among the pathologic conditions to be considered are angina and bronchitis, together with malaise or any of the prodromes of acute or chronic infections The thermometer is here a valuable ally

Patients with paludism and chronic syphilis need not be exempted from vaccination but old tuberculous cases merit careful examination and if the least doubt exists, owing to a history of hemoptysis or pleurisy or to the findings of anemia, rapid pulse, or fever, the patient should not be vaccinated

Organic diseases to be enumerated as contraindications are noncompensating renal disturbances, diabetes, noncompensating myocardial and endocardial involvements aortitis and arteritis, cachexias, gastro-intestinal disturbances, and alcoholism Contraindicatory signs are high blood pressure, albuminuria, tender liver, and abnormal pulse findings

A severe reaction to a previous inoculation should be considered a contraindication There is, however, no objection to the administration of the first inoculation during the incubation period eight days immediately previous to the onset of typhoid fever

With these contraindications in mind, the precautions to be observed in conducting the vaccination are evident, but may perhaps be emphasized with advantage

Precautions—Chief among these precautions is rest, for at least two days, for men vaccinated Vincent attributes the lack of severe reactions in the Japanese experiences to the routine of two days' rest in bed following the injection, and the selection of the men vaccinated A selection of men can be rapidly made by a query as to how they feel Even this precaution serves to prevent the inoculation of those with malaise without fever who are in the incubation stage of acute infectious diseases, such as meningitis Men concerning whom there are doubts should be examined carefully, including an interrogatory, observation of evening temperature, physical examination of the heart and lungs, and a urine examination In one series, a routine urine examination of 6,040 young men revealed forty-four unsuspected albuminurias

Goldscheider, Vincent and Maurange severally recommend, in doubtful cases, a test dose of 0 25 c c of the vaccine

Maurange uses the pulse rate in repose as a criterion for the vaccination of tuberculous subjects, vaccinating those with a pulse rate of from 70 to 80, and not vaccinating those with a pulse rate over 90 He states that he has immunized 127 tuberculous patients without untoward results, and that persons with joint and bone tuberculosis stand the vaccination well

The failure properly to select men for inoculation has resulted in some untoward complications following the vaccination

Complications—The complications noted have been those of arthritis, nephritis accompanied by hematuria and uremia, and pulmonary and intestinal involvements The most frequent pulmonary disturbance was that of a dry, diffuse bronchitis In several cases there was a recrudescence of pulmonary tuberculosis in which the fever remained high for a long time Chantemesse has emphasized the occurrence of the recrudescences of tuberculosis during antityphoid immunization

The severe reactions and untoward complications attendant on the neglect of the precautions emphasized have done much to retard the general adoption of a most efficacious prophylactic measure It should be considered that not every one can be vaccinated against typhoid fever

Among those, however, even in the presence of contraindicatory findings, who have been carefully vaccinated, the results are most favorable in the effect on the course of the disease, and perhaps on its dissemination

COURSE OF THE DISEASE

The effect on the course of the disease is well established The duration of the fever is lessened The percentage of patients showing a temperature of 39 6 C (103 3 F) or over is lessened by about fourteen, in a study of 300 cases The structure of the fever curve is the same in the vaccinated as in the nonvaccinated, but the duration of the fastigium is shortened, and in the vaccinated, it is more often absent The fever curves of the vaccinated are more frequently those of light cases A remitting form of fever is, however, more common in the vaccinated, also a condition of typhoid infection without fever is more common This condition is one in which the patient's fever disappears, but malaise, diarrhea and rose spots persist

The general condition of the patient is better in the inoculated than in the uninoculated The toxic cerebral symptoms are lessened The heart, pulse and respiratory activity are more favorably maintained Complications are rarer in the inoculated, especially heart muscle affections, phlebitis and enteric hemorrhages, otitis and other purulent processes There is no lessening of the recurrences by inoculation Convalescence in the inoculated is frequently strikingly light and rapid

Two inoculations seem to affect these changes more favorably than one, and three more favorably than two, four inoculations seem to have no greater effect than three It is to be noted that these modifications correspond closely with the clinical pictures of paratyphoid infections, hence, a bacteriologic diagnosis is necessary for accuracy in the determination of the effect that antityphoid vaccination may have on the course of typhoid

According to several investigators, who have made careful studies of agglutination curves in typhoid infections, among both the nonvaccinated and vaccinated, the determination of both diagnosis and immunity is most uncertain by this serologic test The serums of many patients never agglutinate the infecting organism, and others lose the power to agglutinate before convalescence Intercurrent febrile conditions, such, even, as angina and rhinitis, are sufficient to increase the agglutinating titer in the serum of the vaccinated Vaccination after a previous case of typhoid, even as remote as twelve years, tends to increase the agglutination titer of the serum Hemoculture has been adopted as the safest criterion for the determination of the infection, and no test of immunity, other than exposure and reinfection, has been evolved Positive findings by hemoculture are less frequent in the vaccinated

The effects on the dissemination or morbidity of the disease cannot be shown with any accuracy from the reports which are at hand, and only a compilation, during times of less stress, of the experiences of the many military medical officers involved in this study will enable us to form an intelligent opinion The reports submitted are fragmentary, usually emphasizing the effect on typhoid morbidity and mortality of one, two or three inoculations, in contrast with the nonvaccinated, without including any reference to the percentage of incidence in the entire division or corps of men, or even to the percentage of vaccinated in the nontyphoidal affections Further, there has not been a scientific separation of the typhoid fevers, in many of these reports However, in such careful and complete analyses as have been made, there seems to be a 60 to 70 per cent protection against infection

The mortality has been even more reduced, since the case mortality is about three times as great in the nonvaccinated as in the vaccinated

English reports state that up to January, 1916, 1,365 cases of typhoid have occurred in the British army in France and Belgium Further, up to 1916, the death rate for typhoid among the British troops in active service was less than that for the male civil population of similar age in England and Wales

In those bodies of men concerning whom there are complete statistics with regard to the prophylactic use of the typhoid vaccines, such as in the Japanese marines and seamen, one finds a reduction in morbidity of approximately 66⅔ per cent, and an equally great reduction in mortality

As indicated above, final conclusions cannot be drawn from the reports at hand One of the great disparities in these reports is the failure to indicate what is meant by typhoid fever

The separation of typhoid fever into three distinct infections was effected a long time ago, but the prevalence of paratyphoid, and the interrelations of typhoid and paratyphoid have become manifest much more recently And only during the war have the paratyphoid infections become of great importance

Widal and Cournmont regard paratyphoid among the troops as the most prominent epidemiologic fact of the war

Lehman, in a review in 1916 of our knowledge of the geographic distribution of paratyphoid A infections, considers this variety of paratyphoid to have had, previous to the war, a distribution relatively limited, in comparison with typhoid He considers it a disease of tropical and subtropical Asia and Africa, and is dubious concerning the reports from Europe and America of the presence of the organism in food, in the intestinal canal of animals, in water, and in milk He believes that its dissemination is chiefly through the medium of "carriers," especially as it usually runs a light course, and presents many ambulant cases

The expeditionary forces at the Dardanelles had a considerable incidence of paratyphoid infections among them

Landouzy, in December, 1914, reported a predominance, in certain districts of France, of the paratyphoid fevers over the typhoids

Bernard and Paraf, in an analytic study, reported in 1915 a great preponderance of paratyphoid infections in the antityphoid vaccinated over those in the nonvaccinated, presenting the remarkable figures given in Table 2 Unfortunately these authors do not give the relative proportion of the normal contingents who were given the antityphoid vaccination Rist, however, in 1916 reported a careful analytic study of a small series of 215 cases of typhoidal infection with 621 controls of nontyphoid diseases, among which he determined the percentage of antityphoid vaccinations *He finds that the percentage of protection afforded against infection with typhoid is offset by the same percentage of increase in paratyphoids* This percentage is identical, to within a figure in the second decimal place

TABLE 2—PREPONDERANCE OF PARATYPHOID INFECTIONS OVER TYPHOID

	Cases	Vaccinated	Non vaccinated
Typhoid (Eberth bacillus)	77	45	32
Paratyphoid	248	222	26

Labbe also reports in 1916 the figures concerning antityphoid vaccination given in Table 3

TABLE 3—PROTECTION AFFORDED BY ANTITYPHOID VACCINATION

	Cases	Vaccinated	Non vaccinated
Typhoid (Eberth bacillus)	241	19	222
Paratyphoid	150	120	40

These French experiences, together with those of the expeditionary force at the Dardanelles, have shown the relative futility of vaccinating with the simple typhoid vaccine, and have resulted in the serious consideration, and to some degree, adoption by the French of a triple vaccination, simultaneously administered, or of a triple mixed vaccine

MIXED VACCINES

Experimentation by Widal and others has shown that vaccination of animals with equal parts of the three heated vaccine viruses (typhoid, paratyphoid A and paratyphoid B) produces in their blood evidences of simultaneous immunization against the three infections

Kabeshima reduced the morbidity of typhoidal fevers among the Japanese marines by injecting separately the vaccines of typhoid, and paratyphoid A and B He states that the simultaneous injection of the three vaccines was not attended by a greater percentage of severe reactions in experimental animals or men than was the injection of the simple typhoid vaccine.

Independent of the vaccinations practiced with this method against the three diseases, the Japanese physicians have had recourse to another preparation, a triple vaccine against typhoid and paratyphoid A and B prepared by mixing in equal parts each of the three heated viruses

From his experiments on guinea-pigs with the use of this mixed triple vaccine, Kabeshima has established the fact that these animals acquired a resistance to the virus of each of these diseases equally as strong as when the vaccinations were made with the separate vaccines

With respect to man, the injection of the triple mixed vaccine has been effective aboard the Japanese war vessel *Katori* What the results were in these sailors, from the point of view of effectiveness, after vaccination with this mixed triple vaccine, the author does not state, he speaks only of the reactions which were caused by this triple method

Reactions and Inconveniences of This Vaccine — This combination of the three vaccines raises another question

The persons who receive the triple vaccine, according to the Japanese authors, do not show local or general reactions appreciably stronger than those caused by a dose of the simple vaccine It is known, however, that these reactions last at least two days, and that the number of the vaccinated who show a fever between 39 and 40 C (102 2 and 104 F) after the triple vaccination is twice as large as after the simple vaccination According to Kabeshima's figures, the proportion is about 5 per cent of those inoculated, with the use, however, of six times the amount of bacilli per cubic centimeter as in the simple vaccinations

Vincent, in describing previous experiences of the French with a triple mixed vaccine, and commenting on the procedure, with the view of adopting a method of triple immunization, gives a comprehensive criticism of the problems involved He says

> In 1913, and also in 1914 it was further used at Oudjda under the direction of Dr Grenier, the respective proportions of the three antigens was in 1913 typhoid vaccine two-thirds, paratyphoid A or B, one third, in 1914, equal parts of these
>
> The immunity conferred on men to the number of more than 4 000 who have received the mixed vaccine, was shown to be as *effective against paratyphoid fevers as against typhoid* The same results have been reported in the Italian army
>
> It has been clearly established, by observation made in man that the protective effects due to the three mixed vaccines are not neutralized. They are superimposed in the same way when one vaccinates simultaneously against typhoid and against smallpox, a common practice in France, or against cholera and smallpox
>
> It may be stated here, that if a really effective immunizing result is to be obtained with the mixed vaccine, it is *self-evident* that it is necessary to inject simultaneously the necessary dose of each vaccine in order to produce the immunity against each of the three diseases
>
> It follows then, that if one seeks to obtain at once the triple immunity, the advantage can be counterbalanced by a practical inconvenience not at all to be ignored namely, the increase of the number of local and general reactions
>
> Such is in fact the factor which may hinder the generalization of the immunity with a mixed vaccine
>
> Dr Grenier has stated to me that in the last attempts which were carried out at oriental Morocco in 1913 and 1914 the reactions in the soldiers vaccinated with the mixed vaccine were moderate, hardly more severe than those caused by antityphoid vaccine alone, but for vaccination a selection of the men had to be made those who were well rested
>
> Under the present conditions, in soldiers recently enlisted exposed to the fatigue of military initiation, marches, daily drills night marches, or those stationed in the trenches or in the neighboring camps and exposed to the conditions of war, it appears wiser to make series of the antityphoid vaccinations and the antiparatyphoid, except under special conditions which permit the mixed vaccination
>
> This practice of successive vaccinations has been carried out a large number of times notably at Val-de-Grace Those who have been successively injected with the different vaccines have not complained of fatigue and have not shown abnormal febrile reaction They have appeared regularly for the full series of injections
>
> Moreover, it is possible greatly to simplify this practice A good immunity can be obtained with two injections of antityphoid vaccine This reduced vaccination, made with doses a little increased, was practiced on my recommendation on a large number of men at the beginning of the war It has been very effective These two antityphoid injections can be then followed by two or three injections of antiparatyphoid vaccine A or B, or A plus B This last mixture, which contains only two vaccines is well supported
>
> We endeavor, for this reason, to extend the employment of the antiparatyphoid vaccine when it is necessary In special cases of which the vaccinating surgeon is the best judge, the mixed vaccine can be used In a general way, it appears preferable, especially under the conditions stated, not to extend this practice systematically, especially when it is possible to make successive vaccinations

Widal and Chantemesse concur in this opinion on the use of a triple mixed vaccine (Incidentally the method of separate triple vaccination is that practiced in the American army)

The paratyphoid fevers are common in the Italian army, and pursuant to the advice of Vincent this army has been using his etherized, mixed, triple vaccine since 1912

Tarassevitch states that the Russian army made use of simultaneous vaccination against the three typhoids in the later vaccinations, and further, that in Moscow, 25,000 men received simultaneous vaccination against the typhoids, cholera and smallpox with only 5 per cent presenting a moderate or severe reaction

Castellani states that 170,000 Serbian soldiers were vaccinated with a combined tetravaccine recommended by him, which included cholera together with the three typhoids The vaccines were prepared by killing twenty-four hour agar cultures suspended in salt solution with phenol

CHOLERA

Reports on the use of anticholera vaccination are confined largely to experiences on the eastern front

The anticholera antigens are prepared by heating suspensions of twenty-four hour agar cultures in physiologic sodium chlorid solution and by phenolizing these, or only by phenolizing the suspensions, adding phenol to a strength of 0 5 per cent The official German vaccine contains two oese of culture in a cubic centimeter Killed organisms are always used, as opposed to Haffkine's method of vaccination with attenuated live organisms, strains are chosen from the local epidemics

The vaccine contains usually 2 mg , wet weight, of organisms to the cubic centimeter

The dose administered is 1 c c , followed in from five to seven days with a second dose of 2 c c

Anticholera vaccination has been made compulsory in the Austrian army, and provisions have been made for vaccinating the civil communities in the area of military operations Reinoculation for cholera has been instituted after three to four months, since the immunity is evanescent, apparently lasting only from six to seven months

Bujwid, who used a sensitized typhoid vaccine and phenolized cholera vaccine, notes that the typhoid reaction is more severe than the cholera reaction, the latter producing a painful swelling in a few hours, with a rise in temperature to 38 C (100 4 F), rarely to 39 C (102 2 F), and is of shorter duration than that of the typhoid

Bujwid states that anticholera vaccination is not as efficient as antityphoid vaccination Hoffman, however, reported that among German troops, when advancing in the regions of the Bug and Rokitano marshes, the mortality among the uninoculated was from 35 to 50 per cent, while among those inoculated it was from 0 to 20 per cent

Kaup (Austrian) stated that after the soldiers had been inoculated, the morbidity was from 1 to 5 per cent, though the exposure was great The course of the disease was mild, and the mortality was from 0 to 20 per cent, as opposed to from 40 to 60 per cent in the uninoculated

A Polish newspaper, in commenting on a winter epidemic of cholera in Poland, remarks, "Cholera seems to be a disease which attacks the civil population and spares soldiers"

While anticholera vaccination has been restricted largely to its use among troops operating on one front, the results obtained are favorably comparable to those obtained from antityphoid vaccines.

Concerning the third important intestinal disease, dysentery, reports are very sparse.

DYSENTERY

Antidysentery vaccinations have apparently not been widely practiced

Hever and Luksch report their use in a small epidemic in a civil community in Germany The strains found were both the Shiga-Kruse and the Flexner Their results are not convincing

The English have been experimenting with several chemicals for the detoxication of the Shiga-Kruse types, and have some preparations of vaccines made in this manner

Castellani recommends a polyvalent vaccine containing the strains of Shiga-Kruse, Flexner and Hiss-"y," to be prepared by killing twenty-four agar cultures suspended in salt solution with 0 5 per cent phenol, and administering doses of 125 million organisms, contained in 0 5 c c of suspension

Hever and Luksch found that children bore the antidysenteric vaccination well with slight or no symptoms, and that no untoward effects were produced in adults

Landouzy warns us that much of the "trench diarrhea and dysentery" is caused by paratyphoid infection, in which diarrhea is practically a constant finding

CARRIERS

The modification of the usual course of these diseases, to that of a mild febrile disturbance, with many ambulant cases, or to one without symptoms, recognized only by a routine bacteriologic diagnosis, has introduced another problem for the military and for civil communities — the "carrier" problem Many of these vaccinated patients become carriers, especially those vaccinated against cholera

Kaup, who had a large experience with cholera, warns of the danger of the carrier, especially with regard to his transportation to prison camps and to civil communities. He states that many carriers develop in new troops vaccinated, and coming to the front in the presence of cholera

Rosenthal and Werz, who made some studies in the German army, found nearly 2 per cent of carriers in a general examination of 686 wounded In 248 cases examined, the cholera vibrio was found in 3 per cent of those inoculated twice Of the carriers, nine showed no agglutinins in their blood, and but two a weak reaction They found difficulty in distinguishing between the carriers and the light cases

SUMMARY

The present war has emphasized the inadequacy of general sanitary measures, without individual immunization, in the prevention of the infectious diseases of greatest military importance, namely, the intestinal infections

The problems in this immunization are those common to all artificial immunization, modified by the readiness with which the hosts lend themselves to the reaction to the group of organisms involved

The antigens used during the war have varied somewhat in respect to preparation and dosage However, they have had as the basic principle for their preparation the choice of that method which conserves the immunogenic characteristics, with a destruction of their infectivity

There seems to be a tendency toward increasing the dosage of the antigenic principles, based on the facility of administration of the entire dosage, at one inoculation, and on the belief that the mass of vaccine injected is important

The period of immunity, after these vaccinations, is in general shorter than has been supposed hitherto, as determined by Wright's observations in India

The methods of vaccination practiced are both enteral and parenteral The former method is of limited usage, and does not at present promise good results

The parenteral injections are made subcutaneously, and can be carried out very rapidly With the proper selection of robust men, preferably under 40 years of age, this method is unattended by severe results

The results of the vaccination may be variously considered from the standpoint of the effects on the subject, on the course of the disease in the host, and on the frequency with which the disease attacks, and on its rapidity of dissemination

The subject reacts locally by redness and swelling, and, in a small percentage of patients vaccinated, by a general reaction

The general reaction may be light, consisting of headache, anorexia, and slight fever, or severe, with a mild reproduction of the typhoid fever syndrome, or with more toxic symptoms

These severe reactions, as well as complications attending them, can be largely avoided by attention to contraindicatory signs and conditions

Such contraindications are both physiologic and pathologic Chief among the physiologic conditions is fatigue, and among the pathologic states are those conditions prodromal to acute and chronic infections, together with organic, respiratory, renal or circulatory involvements, and systemic diseases

Failure to adopt the precautions of rest following vaccination, and of a selection and examination of men about whom there is doubt concerning their fitness for vaccination, may lead to such complications as nephritis, pulmonary and intestinal involvements, and even the recrudescence of a subsiding or latent tuberculosis

The effect on the disease is to shorten its duration and to mollify its intensity While such positive statements cannot be made with regard to the protection afforded against infection, there is sufficient evidence to show that both the morbidity and the mortality are greatly decreased

The diagnosis of typhoid fever has been made more difficult by vaccination, since the serologic reactions usually found are altered by vaccination Hemoculture affords the best criterion for diagnosis, and here again vaccination has interfered by making the cultivation of the causative organism from the blood apparently more difficult

Careful studies have shown that, with the separation of the typhoid fevers there has been a tremendous prevalence of paratyphoid infections current, with reduction of infection by the bacillus of Eberth following vaccination Since no protection seems to be afforded by simple antityphoid vaccination against the paratyphoid infections, triple immunization is recommended and practiced by simultaneous injection of vaccines of each of the organisms, or by injection of a mixed vaccine containing all three

The method of triple immunization has been found to be efficient in reducing the morbidity and mortality from these fevers in the Japanese experience, and in that of the French at Morocco The reactions attending this method are not of much greater severity than those of the simple antityphoid vaccination

Anticholera vaccination has been limited to the troops engaged on the eastern front The vaccines have been made of killed cholera vibrios, of local strains They are administered in two doses, and are productive of less severe reactions than the typhoid vaccinations used on the Austrian eastern front

The immunity is more evanescent, necessitating reinoculation after an interval of from three to four months

The results of the vaccination were favorable on the course of the disease, its morbidity and its mortality

Antidysentery vaccination has been but slightly practiced

The modification of the course of these intestinal infections, to that of a mild febrile disturbance, has produced many "carriers" and has thereby created an additional serious problem for both the military and civil communities

ABSTRACT OF DISCUSSION

Dr. Fred I Lackenbach San Francisco Will Dr Wayson explain the matter of dosage? If, in using mixed vaccines, he doubles or trebles on the dosage over the single strain? Also if by mixed' vaccines he refers to the *Bacillus paratyphosus* A and B as well as the *Bacillus typhosus?* Also, has the United States government adopted the use of the mixed vaccines in its practice?

Dr J F Anderson New Brunswick, N J I should like to ask Dr Wayson if the Besredka vaccine was a living vaccine or a killed vaccine, and the periods of potency of the vaccine used

Dr. Herman Spitz Nashville, Tenn Regarding Dr Wayson s statement that the use of a vital reaction is unreliable in these conditions I should like to report that in a series of some 200 patients (including both sexes and all ages) who received the prophylactic vaccine, the Widal reaction was uniformly negative. The vaccine used consisted of two strains of *B typhosus* and one each of *B paratyphosus* A and B Three and four doses were given I want to ask Dr Wayson if he can offer some explanation why the Widal is negative

Dr. Walton F Dutton Tulsa, Okla For the benefit of those who practice in malarial districts I would cite one case Last summer I treated a patient with estivo-autumnal fever with quinin The patient recovered from the attack of malaria, but did not appear to improve in general health. The condition simulated a pretyphoid state Typhoid prophylactic vaccines were used and the patient began to improve rapidly and made a good recovery

Dr Carl C Warthin, Ann Arbor, Mich I believe that ultimately the solution of the healing of infectious diseases will be attained through these vaccine therapies, and I believe the most recent advances are those outlined by Dr Miller today The question how vaccines work comes up Recent studies on the toxicity of human and other serums have shown the following facts that blood lymph or whole blood or serum or plasma may be rendered toxic by almost any substance brought in contact with it In other words, the serum may be rendered toxic not only by bacteria, but also by certain protein solutions, by substances such as agar, starch charcoal kaolin or any other substance which possesses surface Studies show that a serum so rendered toxic will produce certain symptoms in some animals but not in other animals into which the serum is injected, or will reproduce the same reactions in the body of the animal as in the diseased body These are anaphylactic reactions and may be produced in any degree This seems to indicate that the action of the substance is a physical one as the same reaction may be produced by any substance Two serums may differ as to accomplishing the same thing because of variation in the precipitation of the globulins The injection of vaccines into the human being apparently excites a definite reaction which must be regarded as anaphylactic shock, and this anaphylaxis is part of the immune reaction going on in the body as a result of infectious disease, but that is not all of the immune reaction, accordingly, such treatment as is applied to infectious diseases will yield a certain percentage of good results in a large number of cases, but will not cure all cases of infectious diseases Granting that these reactions are part of the grand immunity process, we have evidence to show that a great many so called immune reactions are also part of the same grand immune reaction Precipitins and agglutinins, complement fixation and opsonins and anaphylaxis may be regarded as representing different phases only of the same large phenomenon of immunity If we consider such reactions as precipitins or complement fixation, we can show that they occur between three substances—the antibody, the complement, and the antigen which permits a definite reaction to occur with the adsorption of complement In syphilis and gonorrhea, to which I particularly refer, we have such immune reaction depending on the specificity of an appropriate antigenic substance of a fatty nature When experimentation on infections shall have progressed further, then the application of vaccine therapy to infectious diseases will start on its right course

Dr. Newton Wayson, Washington, D C. The dosage of mixed vaccines varies considerably in practice There is, however, the usage of the same proportion of each organism, simultaneously given, in a maximum of 500 millions in the first dosage, 1,000 millions in the second There is a tendency to make the dosage larger, rather than smaller The United States practice I cannot give you authoritatively, but I am informed that all troops will be vaccinated against typhoid and paratyphoid, and the mixture of paratyphoid A and B and typhoid will represent one third and two thirds, respectively It will be a simultaneous triple vaccine and not a simple mixed vaccine. The simple typhoid vaccine will be given in the usual dosage By mixed vaccine I mean a vaccine composed of typhoid and paratyphoid A and B By triple simultaneous vaccine, I mean vaccines by three injections one of the typhoid, one of the paratyphoid A, and one of the paratyphoid B The Besredka vaccine is not a killed vaccine. The period of potency of vaccine is uncertain Weber and Wassermann who have done considerable experimental work, think a vaccine should age three weeks, and that beyond this, the age may be almost indefinite without affecting potency Their experimental work was on laboratory animals

The unreliability of the Widal reaction is dependent on two factors I cannot explain why the agglutinins disappear, but it has been found on careful analyses in typhoid fever that the Widal reaction occurs at very irregular periods, appearing as late as the eighteenth or twentieth day of the disease, as early as the seventh or eighth day, and sometimes never occurs Also, first to occur may be a predominant agglutination for the typhoid bacillus, later a predominance for the paratyphoid A or B, and later a rising agglutination for the paratyphoid A or B bacillus A second factor which makes the diagnosis unreliable is that a patient vaccinated against typhoid may show toward the typhoid bacillus a high agglutination titer, which disappears, to return when the patient is affected with a slight bronchitis

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WAX PARAFFIN FILM IN THE TREATMENT OF BURNS*

M L EMERSON, MD
Chief of Surgical Staff, Samuel Merritt Hospital
OAKLAND, CALIF

Following the suggestion of Dr D'Arcy Power, and using his formulas for a film, I have completed treatment in 100 out of about 250 cases treated After the hundredth case I ceased to record the histories The treatment was used in certain selected cases in which it seemed most indicated The patients were selected from my service at Merritt Hospital and the Union Iron Works Brush burns or superficial abrasions or epithelial scraping of skin surfaces are included in this number, burns from electric current, fuse explosions, hot rivets, molten metal, oil flames, hot bitumen, steam, scalds and dry heat, as well as granulating surfaces Burns are usually localized, while the scalds are more extensive Their pathology being the same, the treatment will be considered together For the sake of brevity, these various burns will be considered under three headings first degree, those which involve the superficial layer of the skin characterized by redness without vesication, second degree, those which involve the corium and are characterized by the formation of vesicles and bullae, and third degree, those which destroy the entire skin and partially or completely carbonize fat, fascia, muscles and underlying structure

FIRST DEGREE BURNS

Case 1—J R, rivet heater, had a flash burn on the side of the neck from a sudden explosion of crude oil The burn extended from the maxilla down to the shirt collar from the front of the neck to well back under the ear The first treatment consisted of cleansing the part of grease and dust particles with 0 5 per cent iodin in benzin The part was then thoroughly dried with a small warm air electric blower, such as hair dressers use for drying the hair A very fine filament of wax was now sprayed over the surface No other dressing was applied The application relieved the pain After three similar applications at intervals of twenty-four hours, the patient was discharged as cured The film in this type of case must be very thin A thicker coating without a gauze dressing will curl up and peel off

Case 2—A similar burn covering the entire back of the neck was treated in the same way, and the patient was discharged after two applications

Case 3—A flash burn the size of a dollar on the left d tck was given three applications, after which the patient comdischarged

op in re being no broken surface and no chance for in the n, the type of burn illustrated in Case 2 gen- nthal cured in a few days with any of the recognized an army, tments Carbonized carron oil, phenolated eral exam petrolatum, starch and soda, anything that excludes the air, generally gives relief These burns are seldom covered by dressings unless they are on the hands

ed, the ch

SECOND DEGREE BURNS

These are the most common, over 70 per cent being tabulated out of the entire group The majority are infected, especially if oils and medicated grease are applied as a first dressing Carron oil, composed of equal parts of lime water and sweet oil, is popular among mechanics, but it is the bugbear of the surgeon Many patients treat themselves first, and then come to the clinic for treatment of the infection

Case 4—A second degree burn on the anterior surface of the leg, 3 by 4 inches square, was treated for seven days by moist dressing The skin was thoroughly dried, every pocket of superficial skin was removed with cuticle scissors, and the wax film was applied A considerable discharge looking like yellowish pus followed the first dressing, but this soon cleared up

The continued moisture collecting under the wax seems to be one of the great disadvantages However, this wound healed kindly under twenty-seven days' treatment of daily wax application, which I consider a fair result It would probably have healed just as quickly under a moist dressing of physiologic sodium chlorid solution, sodium bicarbonate solution or a 1 per cent watery solution of picric acid, the advantages of the latter being that the dressings can often go from two to five days without being changed

Case 5—A brush wound covering the entire outer aspect of the right arm from the shoulder to the elbow, superficial in character yet one which should be classified as a second degree injury, showed but little contusion, the superficial abrasion was caused by the breaking of an air hose, causing a friction rub over the outer aspect of the arm denuding it of the superficial epithelium The wound healed completely under six daily applications of wax

This I consider an ideal case for wax treatment This type of wound is not so serious as it looks, especially if the deeper structures of the skin have not been traumatized, and there is no extensive hemorrhage from the surface They always become infected if grease is applied, and it is always tempting to place a medicated salve over this type of injury It requires two or three weeks to heal up the infection, especially if the grease application is continued These wounds do well under a dry application of dusting powder, one part of salicylic acid to three parts of boric acid However, the wax worked admirably in this case, probably better than any other form of treatment would have done

Case 6—A foot burn covering the anterior aspect of the foot from the ankle to the toes, while classed as a second degree burn, presented three or four small areas that were much deeper which seemed to be very slow in healing Many of these burns could be classified as first, second and third degree In these small areas I placed small pledgets of gauze saturated with phenolated camphor, and then covered the entire area with wax This worked nicely The burn healed under fourteen daily treatments of the wax film

Case 7—A burn on the back of right hand, the size of a silver dollar, seemed very stubborn under the wax treatment, requiring thirty-seven daily treatments I imagine it would have healed much faster under a picric acid or boric acid compress

The great majority of all patients with burns continue working One can well imagine how slow the healing must be in a malleolus burn the size of a silver

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those inocula* the Alameda Medical Association dollar, especially when it approaches the third degree Perhaps, therefore in recording the results of these cases I am not doing justice to the wax film or any other method of treatment, because the parts are not placed at rest

Case 8 — An extensive forearm burn from hot bitumen involved the posterior aspect of the arm from the wrist to the elbow The bitumen film was peeled off and the superficial blistered skin removed The arm was washed with warm phenolated solution, and then cleansed with 0 5 per cent iodin bezin solution A moist compress of neutral solution of chlorinated soda was changed twice daily for four days The wax treatment was then applied and continued for sixteen days The wax was left on for twenty-four hours Each day there was a free puddle of yellowish pus-like material of seropurulent character under the wax film This puddle of exudate was so abundant that I was compelled to discontinue the treatment Each day the wound was cleansed A moist compress of neutral solution of chlorinated soda was placed over the surface for ten minutes then the surface was glazed dry with the hot air blower, and the wax was applied The wax treatment in this case continued for sixteen days without any apparent improvement anywhere on the wound I then placed moist picric acid gauze on the arm and had the patient return in forty-eight hours Parts of the wound were now dry Some were still moist I renewed the picric acid gauze and directed him to report in three days One half of the wound was now dry covered with a dry yellow film of stained epithelium The next dressing showed the wound covered with dry epithelium except a patch the size of a dollar which was covered with granulations This was the condition of the wound after thirty days' treatment The patient then moved to San Francisco What has become of the granulating patch I do not know Perhaps the preceding wax film treatment facilitated the rather rapid healing under picric acid but the abundant secretion under the wax after sixteen applications discouraged my further use of it in this case Endeavoring to remove all possible infection from wounds before applying the wax film I used a saturated solution of salicylic acid (watery solution), a method quite common preceding skin grafting When the wound was sealed with wax however a puddle of pus would soon follow and the abundant moisture would seem to delay the healing Cultures showed this yellowish exudate to contain staphylococci in all cultures taken

THIRD DEGREE BURNS

In observing third degree burns, I have never seen a burn the size of a dime heal in less than six weeks' treatment by any other method than skin grafting It often takes from three to five weeks to determine whether or not a burn is going to be a third degree burn Under compress dressings the deep skin will struggle for life About the time the wounded derma looks as though it was going to come to life, it apparently breaks down over night and sloughs off — a liquefaction necrosis Often the wound is charred — carbonized — and will remain so for a couple of weeks before it begins to slough Then it will be a week or ten days in sloughing before it is suitable for skin grafting It is impossible to skin graft a wound while the patient is working Zonas silk smeared with scarlet red will help, but nothing in my hands has completed the healing under the time mentioned above

Case 9 — A submalleolus burn the size of a dollar was dressed for four weeks by compress, when ready for skin grafting The wax filament was used for thirty consecutive days Exuberant granulation appears to be a great factor under the wax treatment The granulations became so pronounced in this case that they had to be trimmed down every four or five days The epithelium did well for a few days but when the wound got to the size of a quarter it became so sluggish that I resorted to picric acid gauze This soon caused a dry scab to form under which epithelization was completed in twenty-five days more, making twelve weeks for the entire healing of this wound A similar wound took thirteen weeks to heel under scarlet red

Case 10 — A carbuncle crater the size of a quarter on the shoulder, filled with granulating tissue was treated thirty days with wax but discontinued thereafter and completed under picric acid gauze

Case 11 — A granulating wound on the inner side of the leg over the middle third of the right tibia, arising from an open incision for an abscess demonstrated no improvement whatever after thirty applications of wax although the wound looked ripe for skin grafting when the wax treatment was commenced This patient was then sent to the hospital and treated by skin grafts

Out of twenty-three cases of third degree burns, I have not been able to heal one with the wax paraffin treatment After from twenty to thirty applications of the wax I had to resort to the aseptic scab produced by picric acid gauze or scarlet red on oil silk, or boric acid compress The formula given by Dr Powers is white wax, 3½ parts, paraffin, 3½ parts, resin, ½ part This works well applied with a cotton applicator or small varnish brush, but is too dry to apply with an atomizer The proprietary preparations which seem to carry more paraffin seem to work better with the atomizer The technic of application was to render the burn as clean as possible, remove all epithelium, glaze the wound dry with the warm air blower, or use a Politzer bag over an alcohol flame or fan the wound until it was perfectly dry The wax was then applied at about 130 F either through the sprayer or with a camel's hair brush When a thick coating covers the wound, fine filaments of absorbent cotton are pasted on until the entire wax is covered With the spray this is tedious, so we first sprayed the wound to save traumatism, then used the brush to apply the cotton over the partially cooled wax, and then covered it all with gauze and bandage

DISADVANTAGES

1 An infected wound is covered with a sealed dressing

2 There is a copious seropurulent exudate in every dressing removed

3 We have no way of controlling the temperature of the wax Taken from the boiling water at 212 F, it is too hot Cooling at 114, it is too cold The degree of pain caused the patient is the only means one has of knowing if it is too hot, unless one tries it first on the back of the hand

4 Around the skin edges it is painful

ADVANTAGES

1 In certain types of second degree burns it is about as good as any other dressing

2 It keeps dirt and sweat out of the wound

3 It is a great producer of exuberant granulations

CONCLUSIONS

I regret that I cannot accomplish results said to be attained by other clinicians in third degree burns Growing skin over night, or growing it by wholesale, which were the topics on the subject I read about in certain popular magazines, has not been my experience

I believe the wax film is a good addition to the various methods for treating certain denuded surfaces and burns, but not a cure for all types of injury

1307 Broadway

EXTERNAL URETHROTOMY AND SEMINAL VESICULOTOMY

COMBINED IN A SINGLE OPERATIVE PROCEDURE *

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In an extensive and continuous personal experience with seminal vesiculotomy dating since 1901, complicating surgical conditions have naturally many times been encountered which tend to render the operation difficult, and in the class of cases now to be considered, existing complications were such as formerly either to bar me from performing vesiculotomy or else to force me to undertake that procedure only as a late sequel to other surgery. In early articles bearing on the surgery of the seminal vesicles, I have been careful to emphasize that it is often necessary to resort to catheterization in the after-treatment, and that consequently the urethra should be explored before operation to determine that no obstruction to the passage of a catheter exists. In cases in which catheterization has not seemed feasible, I later advocated opening the floor of the bladder between the seminal vesicles for introduction and retention of a catheter to drain the bladder. In 1910 I called attention[1] to this procedure and the uses to which it could be put. Postprostatic cystotomy does not contemplate a repair or correction of an existing urethral lesion. It simply serves as a means of avoiding the passage along the urethra of an instrument during the few days subsequent to a seminal vesiculotomy when such instrumentation may be called for to relieve retention.

The class of cases to be here considered are those in which a severe lesion of the seminal vesicles coexists with marked disorganization of the deep urethra. Acute or chronic systemic sepsis is the resulting complication which most frequently forces the surgeon to prompt action in these cases, though retention of urine, complete or partial, may be the impelling cause. Hitherto when the surgeon has been forced to act in this connection, his object, as a rule, has been simply to establish free urinary drainage, thus partially relieving the patient for the time being. This palliative surgery may save life and by so doing allow the patient to drift back into a state of invalidism. The reason for this is that not all septic foci are thereby eliminated.

My former method of dealing with these cases was by resort to two or perhaps more separate surgical procedures. In case of acute retention combined with acute sepsis, the perineum would be opened freely and also a suprapubic vesical opening might be made, should free urinary drainage not be otherwise assured. In such a case two other subsequent operations would probably be demanded to insure complete recovery, namely, seminal vesiculotomy and a repair operation in connection with the urethral lesion. In cases in which the urethral obstruction was not complete and the sepsis not of a grade of extreme severity, I often performed first a seminal vesiculotomy combined with postprostatic cystotomy, and then later as a second operation external urethrotomy and a repair of the urethral lesion.

There were various objections to treating these cases by multiple operations, aside from the chief one already mentioned of the failure promptly to eliminate all septic foci. Such failure materially increased the risk as regards mortality, and besides this, in a case still septic, surgical repair following a primary operation was slow and unsatisfactory, inviting persistent fistula in connection with urinary drainage and nonunion where plastic repair work had been attempted. When a patient has been through a severe illness and a surgical ordeal, it is often difficult to get him to consent to necessary supplemental operations in the near future, or at least I have so found it, a result being that the patient may finally leave the hospital still suffering, generally dissatisfied with what has been done for him, and strongly inclined to seek other surgical advice. On several occasions I found a second operation demanded as an emergency measure before convalescence had been established following a primary procedure. This occurred mostly in cases in which inflammatory exudation about a deep urethral lesion increased rather than diminished after the bladder had been drained through a postprostatic cystotomy. In the majority of instances, when the passage of the urine is diverted from the urethra, improvement follows in connection with the inflammatory status of a urethral lesion, but in these minority instances the exudation increased sufficiently to block the urethra, thus causing retention as soon as the postprostatic vesical opening closed. The development of such an emergency is objectionable from a surgical standpoint, and should be avoided if possible. These surgical objections were sufficient to lead me to treat cases of this description by one radical and combined surgical procedure undertaken as a single operation. My experience in so doing has been highly gratifying.

The combined operation cannot be performed by maintaining the body of the patient in one position on the operating table. One change is always required, and often a further change is desirable. In the latter cases, however, a further change consists simply of a shifting of the body back from the second position to the original first position in order the better to adjust drainage tubes and packing. My operative technic in connection with seminal vesiculotomy has already been fully reported.[2] The same can also be said regarding the surgery employed in connection with the deep urethra.[3] In the combined operation the patient is first placed in the knee-chest position for drainage of the seminal vesicles and of the adjacent postprostatic extravesical region, provided such area has become involved. After gauze packing has been adjusted, the patient is then turned into the lithotomy position, the perineum incised by a free median incision, the deep urethra opened, and the neck of the bladder freely incised. The next step of the operation is to treat or repair the existing lesion of this part. This may call for urethral resection, the elimination of urethral false passages, the drainage of areas of suppuration, etc. The maintenance of perineal vesical drainage by the insertion of a rubber tube is always a feature of this operation. When active suppuration is present it may be necessary to leave the perineal wound open and packed with gauze, otherwise it is often feasible after

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* Read before the Section on Genito Urinary Diseases at the Sixty Eighth Annual Session of the American Medical Association, New York, June, 1917

[1] Fuller, Eugene Post Prostatic Cystotomy, Med Rec, New York, Oct 22, 1910

[2] Fuller, Eugene Extraperitoneal Rupture of the Bladder Its Surgical Management, The Journal A M A, Dec 12, 1914, p 2114 Drainage of Extravesical and Extraperitoneal Suppuration of the Mal Pelvis, Oct 25, 1902, p 1021, Med Rec, New York, 1913, 84, 691

[3] Fuller, Eugene Med Rec, New York April 2 1910

repairing or eliminating lesions to close the perineum with the exception of the opening left for the passage of the vesical drainage tube When the perineum is closed, it is often necessary to maintain in the urethra a drainage tube to act as a splint as described in my article[3] already referred to in dealing with the surgery of the deep urethra Aside from those, there are two tubes necessary in connection with the seminal vesiculotomy All packing and sutures are removed at the end of five days, and the tubes generally at the end of ten days after operation In order to illustrate and to make clear the necessary field for this combined surgical operation, the clinical history of a few cases will be recited

REPORT OF CASES

CASE 1—A man aged 36 entered the City Hospital with retention and in a septic condition He had been well until about a month before when he contracted his first gonorrhea Examination revealed bulging periurethral abscess just anterior to the penile scrotal junction The perineum was swollen brawny, and tender to the touch evidencing deep suppuration also in that region. Rectal exploration revealed great tumefaction tenderness and heat involving the entire postprostatic area. It seemed plain that there were three independent foci of active suppuration and that thorough drainage of these together with the bladder were promptly demanded to save life The patient was put in the knee chest position The seminal vesicles were opened together with the periseminal vesicular tissues About 4 ounces of pus were liberated The patient was then put in the lithotomy position and the perineum opened freely A large amount of pus was liberated by this incision After the bladder had been opened for drainage this region was packed The periurethral abscess was next opened by an incision through the urethral floor This thorough procedure combated the systemic sepsis The patient left the hospital in a very satisfactory condition

CASE 2—A man aged 45 entered the City Hospital chronically septic and so rheumatic that he walked with great difficulty Both ankles were tumefied red and very tender to the touch. There was hardly any control of urination, and there was much frequent vesical tenesmus Control of the bowels was uncertain. There was more or less continuous rise of temperature The patient had been strong and vigorous till about three years previously when he contracted gonorrhea The history was that retention followed and that the bladder had been opened and drained by way of the perineum leaving the patient in the present condition Examination revealed considerable scar tissue in the perineum and some induration Manual examination through the rectum revealed the entire postprostatic space filled with indurated tissue which completely enveloped the seminal vesicles extending forward into the prostatic capsule and laterally to the borders of the pelvic space This extensive lesion involved the trigonum causing marked pericystitis There was disorganization of the deep urethra, it being difficult to pass an instrument into the bladder owing to a sulcus or pouch on the floor and just anterior to the prostate The seminal vesicles were opened and free dissection made into the surrounding tissues The perineum was then opened, the sulcus dissected out, and the prostatic fibers encircling the vesical neck cut through this incision being extended backward so as to include the anterior portion of the trigonum which was also involved The patient made an extremely satisfactory recovery All the septic and inflammatory conditions disappeared together with the pericystitis He left the hospital comfortable and with good control of the bladder

CASE 3—A man aged 38, entered the City Hospital with difficult frequent and very painful urination At times the urgency was so great as to occasion persisting vesical tenesmus Chills and fever were prominent symptoms There were marked perineal pain and general distress referable to the pelvic, sacral and hypogastric regions There was a history of early gonorrheas and urethral stricture There had been much urethral instrumentation, and on two occasions there had been perineal operations for stricture Each operation had apparently served to increase the symptoms of discomfort and for a long time past it had seemingly been impossible to pass instruments into the bladder Instruments passed along the urethra were deflected into one or more false passages There was much induration in the perineum Rectal examination revealed extensive hard cicatricial involvement of the prostate and seminal vesicles Such involvement also included all the postprostatic fibrous structures indicating that formerly there had been extensive suppuration in this region An attempt to repair the urethra by operation neglecting the lesion involving the seminal vesicles would it then seemed to me, invite another failure Accordingly seminal vesiculotomy was first performed, and then the perineum was opened the urethra partially resected, the false passages eliminated and the rigid contracted neck of the bladder cut through The patient made such a complete recovery that he left for France, expecting active military service

CASE 4—This patient was a man, aged 70, whose chief symptoms were severe perineal pain often involving the rectal region During periods of exacerbation, the pains would radiate down the thighs and into the hypogastric and sacral regions Urination was difficult and frequent The stream was slow to start and lacking in force On several occasions retention had occurred necessitating the passage of a catheter There was no urethral obstruction The bladder was considerably contracted any distention over 6 ounces causing great pain Aside from an old chronic streptococcus infection the urine showed nothing abnormal The present symptoms had commenced twenty-five years previously As a young man he once had gonorrhea The senior Otis had operated on the patient's anterior urethra many years before, but nothing that had ever been done for him had apparently resulted in relief There had been a frequent resort to opiates and when he came to me the drug habit in a moderate degree was established Years ago there had been considerable discomfort from priapism, and sexual indulgence had then increased his discomfort For years there had been no such indulgence There was no tuberculous history Rectal examination revealed the prostate atrophic and very sclerous The seminal vesicles were tumefied, very sclerous, and so sensitive to the touch that the patient cried out with pain, asserting that therein lay the seat of his pain and discomfort. There was marked rigidity and contraction of the prostatic neck of the bladder A bougie a boule could be easily passed into the bladder, but its extraction was difficult, as the shoulder of the instrument caught and was held by the contraction. Cystoscopic examination revealed the bladder trabeculated The surgical indications were to open the seminal vesicles and to cut through the contracted prostatic neck of the bladder When the seminal vesicles were opened, numerous small calculi were found in each to account for the extreme pain and sensitiveness Next the perineum was opened, the vesical neck incised and a tube inserted into the bladder The structures making up the rectal wall were thin and atrophic, and this, in view of the age of the patient, caused me to make a counter suprapubic vesical opening to insure especially free drainage, and the more to guard against postoperative tenesmus I had a fear that sloughing of the rectal wall might result should there be unnecessary tenesmus following the operation The operation was highly successful, the patient leaving the hospital free from pain, and voiding urine without obstruction

COMMENT

My present experience with this combined surgical procedure is confined to ten cases, in nine of which the patients recovered satisfactorily The one who died was septic before operation, owing to streptococcus involvement of both seminal vesicles Aside from this, some prostatic hypertrophy had to be removed when a contracted vesical neck was incised In this case, on the seventh day after operation, when convalescence was seemingly established, persistent hemorrhages occurred, suggestive of hemophilia The patient died about one week after the occurrence of the first hemorrhage, horse serum and thyroid having no seeming effect

ABSTRACT OF DISCUSSION

Dr E O Smith, Cincinnati We are all familiar with Dr Fuller's work on the seminal vesicles and his particular method of perineal drainage with the urethral splint I have used this method, but not in this particular group of cases It was in cases in which there were persistent fistulas that could not be closed otherwise, and in which there was no particular inflammation of the vesicles I can readily understand how this method would be very valuable in the class of cases presented by Dr Fuller Of course, we do not see a great many cases that have three foci of infection at one time, but it is purely a matter of common sense to open all the sources of infection The simple opening of the perineum in the particular case reported would not have given the patient relief, because the seminal vesicles were also foci of infection

Dr R H Gibbons, New York I am glad to know that Dr Fuller has added external perineal urethrotomy to his theretofore most successful operation of vesiculotomy A young man contracted gonorrhea His family physician treated him He told the patient to take plenty of water, plenty of milk, no stimulants, no tobacco, etc, and no injections, and in due time he got well, apparently Later he contracted another infection He then went to a general surgeon who used sounds, etc, and still the discharge kept up Then he went to a general practitioner, who instilled silver nitrate into his deep urethra and cleared up his discharge in five to ten days Then he began to have distress and suffering, and became wretched and miserable. He had boils here and there, so-called abscesses, and eventually he went to Eiselsberg's famous clinic in Vienna, where he was subjected to various tests, and Eiselsberg told him he did not know what the trouble was, but thought there was a piece of bone in his rectum He had an abscess in his rectum A prominent genito-urinary man in New York saw him repeatedly, and many Wassermann tests were made, with a diagnosis of syphilis Finally another general surgeon found a tumor and cut into it. He then came into my hands I made an examination and thought he had sacro-iliac disease, but the next day I changed my mind and thought it was all due to a vesiculitis, and asked him to go to Dr Fuller, which he did not do for some time In Chicago another surgeon examined him, and said "Young man, you've got tuberculosis, and you've got to go away to live out of this country, go where there is plenty of sunshine" He came back to New York and told me what this gentleman had said I called in Dr Virgil P Gibney, who convinced him that he had no such trouble I then had him see Dr Fuller He was fairly well then and Fuller advised him to wait a year At the end of a year Dr Fuller dissected out the vesicles If that operation had been done at the opportune time all this misery, suffering and suspense would have been saved The patient got well, except that he had a peritonsillar infection, which I attributed to the trouble in the genito-urinary tract The tonsils were removed

Dr. Eugene Fuller, New York This paper deals with a method which has not hitherto been described I put it on record as an efficient method of dealing with a class of cases which had not received curative attention, as I think you will agree if you are in institutions where you get hold of such patients as we do at the City Hospital Many patients are sent there with the expectation that they are surgical lemons, but in reality they are the very best cases to tackle, because to get results one has to do something a little better than the preceding fellows Many of the cases under consideration have been straightened out, most of the patients had gone the rounds of the best hospitals and had fetched up at the City Hospital as the last resort. One of them is now doing his bit fighting at the front

When I first employed this procedure I felt that opening the seminal vesicles and then the deep urethra, at the same time splitting the prostatic neck into the trigonum, looked radical, and it is radical You hear men say, "That is too radical," and perhaps that "he is a butcher," etc., but I think that sort of comment is rather a compliment to a man than otherwise if his patients get well I hope the gentlemen of the section will try to manage these cases along this line and not be afraid of the free openings any more than one need be afraid of the free opening of an abscess

The case that Dr Gibbons spoke about was extremely interesting, because that man had, primarily, suppuration in connection with his seminal vesicles, and this suppuration had seeped its way through the bony structure of the back above the sacrum and had pointed outside I had never before seen such suppuration so pointing A dorsal incision had previously been made and a piece of the sacrum had been chiseled out, on the assumption that the bony structure was the primary seat of the disease In the performance of seminal vesiculotomy in this case I found certainly over an inch of dense fibrous tissue to be incised before reaching the focus of the seminal vesicle abscess We drained it—that was several years ago—and I feel that I did not drain it sufficiently long as the man was slow in getting well I think in a case like that in which the abscess walls were so thick, it would be well to keep the drainage tube in for a couple of months rather than the customary ten days

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ABSORBABLE METAL CLIPS AS SUBSTITUTES FOR LIGATURES AND DEEP SUTURES IN WOUND CLOSURE *

E WYLLYS ANDREWS, MD

CHICAGO

Metallic clips can be inserted much more quickly than any suture They are also more rapid than stitches for closing deep layers and bleeding vessels but would, of course, leave the wounds full of small foreign bodies unless some absorbable metal could be used I have been trying various metals and alloys with a view to finding those most absorbable, hoping to combine the good qualities of the animal ligature with the strength and speed of the metal clip, clamps and staples

A large part of the time required for any operation is that used in tying ligatures and in deep suturing In some operations this amounts to 80 or 90 per cent of the whole time spent If we make a "study of efficiency" in wound closure we see at once that there is a great deal of lost motion in first seizing and subsequently tying large numbers of vessels Could not these two acts be made one? If each artery forceps carried its own clip or circlet so as to leave behind a tightly closed vessel when removed, wound hemostasis would be much simplified and shortened The more numerous the forceps required and the more inaccessible the location, the more advantageous are the clips by comparison

Harvey Cushing has advocated small silver clips for closing little vessels in brain surgery Their advantage over heavy forceps or needle and thread is obvious in delicate structures which do not bear rough handling Almost the same advantages are apparent in operations in other parts of the body Not only for ligatures, but as a substitute for deep sutures, clips have the advantage in speed and security The deep suture forceps recently described by me enables the operator to place stitches rapidly in any deep location, but even this requires the tying of knots which is less speedy than the placing of clips Sometimes the safety and rapidity of the old-fashioned Michel "agraffes" has tempted me to use them in deep wounds at the cost of leaving foreign body, just as certain operators practice leaving hemostatic clamps in deep wounds a few days instead of hemostatic ligatures In using clips I have attached to them strong cords or fine chains which were left hanging from the wound for drainage and to secure easy removal The pendant cords or chains are useful drains in nearly all such cases and will bring out the adherent clips in eight or ten days

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* Read before the Section on Surgery, General and Abdominal at the Sixty Eighth Annual Session of the American Medical Association, New York, June, 1917

A little experience with using clip forceps rather than common hemostats will convince any operator that this surgical wrinkle combines two important steps into one If we seize every bleeding point with clip-carrying forceps instead of empty forceps, we seize and tie the artery in one motion I was led to try this first in cadaver and in dog operations as a mode of speeding up and later in a considerable number of operations on man I am convinced of its practical value both in deep ligating and deep suturing To this method two objections are apparent

1 Some small branches and some wrongly placed hemostats do not need ligatures

2 Foreign bodies are left in the tissues

To the first objection it may be said that our technic would be better if we had a routine of ligating *all* vessels however small, and that seizing wrong points could be avoided by care and practice Bissell's recent work on fat embolism shows the importance of tying all veins as well as all arteries

The second objection—that of leaving foreign bodies behind—is the occasion of this paper, which refers to my efforts to find an absorbable metal or alloy of metals which will disappear ultimately when buried in wounds

An ideal absorbable metal is pure magnesium which, as shown by our experiments and as was known some time before, disappears rapidly in healthy tissue and leaves no irritant residue But this metal is brittle and weak in small pieces

In a series of animal and human operations I tested a variety of metals by implanting small pieces in living tissue and soon found that several common ones of low melting point were absorbed or disappeared with fair rapidity in aseptic wounds Several of these—aluminum, zinc, cadmium—were tested carefully as to rate and time of absorption, and while the results seemed inconsistent, they prove a generally constant ratio of absorption for each mefal tried when all the conditions were exactly equal

LABORATORY RESEARCH ON ABSORBABLE METALS

The first work was done in the laboratories of the Morris Research Institute in a series of operations on dogs, with the assistance of Dr Edmund Andrews, in 1915 The size, time and per cent lost daily is shown in Table 1 The location chosen was usually the space between the rectus muscle and anterior or posterior rectus sheath

These experiments show that the four metals tried last in the tissues from fourteen to 1,000 days It is clear that these results are not consistent, since the ratio is not always the same with the same metal This is especially marked in comparing the rate of absorption in large and small pieces The 4 gm piece of aluminum lost only 0 10 gm in twenty-one days or 2 5 per cent , equaling about 0 1 of 1 per cent per day, while the 0 12 gm piece lost 0 025 gm and almost 25 per cent in fourteen days, or almost 3 per cent per day, and a 0 10 gm piece lost 0 030 in twenty-eight days, 30 per cent , or about 1 per cent a day

It would appear that the total absorption was dependent more on surface exposed than the weight of metal Thin wires and sheets gave up as much material to absorption as large thick pieces of the same area Also the inconsistencies shown by these tests are partly due to the greater power of some tissues to absorb metals as compared with others It is my opinion also that good or poor repair in the wound and septic or aseptic healing has much to do with the course of absorption Chemically it would seem that absorbable metals are those corroded by alkalies, such as aluminum, cadmium, zinc and magnesium All absorption, however, is dependent on close vital contact with living cells and is retarded or prevented by the presence of wound secretion, especially pus

TABLE 1—TIMES OF ABSORPTION OF FOUR METALS

Dog No	Metal Used	Weight Gm	Weight (Gm) Removed After 14 Days	After 21 Days	After 28 Days	Per Cent Absorbed	Per Cent Absorbed One Day	Time for Total Absorption Days
1	Magnesium	0 07	0 016			77	5	20
2	Magnesium	0 0	0 000			100	7	14
3	Magnesium	0 4	0 000			100	7	14
4	Cadmium	0 70	0 70			0	0	
5	Cadmium	0 75		0 321		57	2	50
6	Cadmium	0 40			0 13	70	2 5	40
7	Zinc	0 14	0 076			52	3 5	30
8	Zinc	0.25		0.201		12	0 5	200
9	Zinc	0 15			0 121	20	0.8	167
10	Aluminum	0 12	0 075			40	3	33
11	Aluminum	4 00		3 90		2 5	0 1	1 000
12	Aluminum	0 10			075	25	1	100

To make these results consistent we have only to repeat these experiments in large numbers and with uniform technic as to exact size and form of metal pieces tested My work shows, however, a definite ratio between various metals as to time of disappearance when pieces of equal size are similarly implanted in living tissue Magnesium again proved the most rapid in disappearance, as it is the most benign and innocent in all its salts and oxids Aluminum apparently is slightly more soluble in the body than zinc or cadmium, but all three are capable of disappearing in a few weeks' time when small pieces, say 0 01 gm to 0 10 gm , are inserted Bismuth absorbs very slowly, as do arsenic and antimony, but these metals lack toughness and malleability

Other metals, silver, bronze, lead, nickel, steel, copper, etc , we know will remain unaltered except by slight tarnishing for indefinite periods in the living structures This is also true of the amalgams of hard metals with mercury Pure tin and lead are absorbed almost imperceptibly if at all While pure magnesium is the quickest and safest of all metals to leave in living tissues, being rapidly absorbed and leaving no toxic residue, its physical properties, aside from its extreme lightness, do not recommend it for ligature, clips, or any use demanding tensile strength Magnesium wire and ribbon cannot be tied even in loose knots, as it breaks immediately on kinking It cannot be twisted even loosely without showing its brittle nature It is true it can be made into solid rings and bobbins and buttons Intestinal buttons made of it will disappear by absorption or oxidation *if not passed*, as will pins and intramedullary cylinders in bones Lespinasse has used cylinders or rings of pure magnesium for blood vessel anastomosis L L McArthur on theoretical grounds suggested some years ago that various alloys be tried of magnesium with stronger metals so as to combine absorbability with toughness His suggestion was not acted on practically at that time

The animal experiments above tabulated I made the basis of observations given in Table 2

TABLE 2—THE RANK OF THE VARIOUS METALS

Absorbability		Tensil Strength		Maleability and Flexibility	
1	Magnesium	1	Aluminum	1	Zinc
2	Cadmium	2	Cadmium	2	Cadmium
3	Zinc	3	Zinc	3	Aluminum
4	Aluminum	4	Magnesium	4	Magnesium

It would appear certain that each of these metals possesses a superiority in some factors and all have a softness and absence of spring temper which is desirable It is this soft yielding quality which makes pure silver wire so much superior to bronze or steel in wire suturing, and which gives the German silver skin clips their power of remaining set Any metal with springy elacticity refuses to be molded into place and hold its shape, so as to hold well One of the strongest known wires is the aluminum bronze recommended by Dr M L Harris for sutures This has vastly more tensile strength than pure silver or pure iron wire of the same size, but I have never found it anything but vexatious because of its high modulus of elasticity and spring temper

We were reduced to the half dozen metals of the soft consistence, rapid corrosion and low melting point, and evidently could get the qualities needed only by some alloy or combination Alloys do not always have the combined qualities of their ingredients so that some experiments were made by alloying magnesium with the several other absorbable metals to get a union of good qualities

My idea was that the nearest alloy to pure magnesium which would be as flexible as, say, sheet cadmium, zinc or aluminum and could be knotted without breaking would be best

The mixtures first tried were Magnesium and aluminum, equal parts, magnesium and cadmium, equal parts, magnesium and zinc, equal parts These were all of a pasty consistence like soft solder when half melted and had all the bad properties we wished to avoid They were hard, brittle and without tensile strength One mixture, magnesium 25, zinc 35, aluminum 40 per cent, was so brittle it could be powdered in a mortar Doubtless annealing and rolling would improve these metals, but no mixture we have had made equals aluminum or cadmium in toughness or zinc in soft malleable temper

So far my efforts to alloy magnesium with either of these metals have not given the qualities I sought, many of the mixtures tried lacking in ductility, flexibility and toughness Some alloys are now being prepared which I hope to find more suitable by preventing oxidation during the mixing

Ordinary surgical clips or imported (Michel "agraffes") and the form of horse-shoe and clam-shell clips, described by me in a previous paper, are made of the alloy known as German silver It has exactly the right qualities mechanically for this work These clips lock firmly wherever placed by their own property of inelastic "setting"

I find absorbable metals of the kind above mentioned, I mean aluminum, cadmium and zinc, to work equally well for buried clips Buried wire staples and little clamps or clips disappear in the tissues in a few weeks if small and light

For larger work bone plates, intermedullary pegs, nails and screws, magnesium answers well and disappears in one or two months, especially if perforated or fenestrated and made as thin as possible It has nothing like the strength of steel for Lane plates, but compares favorably with ivory or bone pegs for placing in the shafts, pegging the head of long bones

Pure aluminum wire and commercial alloys are especially good if made into cables and used to sew fascia and deep muscles Here it has no striking advantage over a perfect animal ligature except that it is rapidly and certainly made sterile by boiling Alkalies must not be added to solutions for boiling aluminum or zinc, as they dissolve it rapidly

The tiny absorbable metal clips and staples are a great gain in many operations If we seize all bleeding points at first with clip bearing forceps we may put on a few unnecessary ones, but clearing the field at once of dangling hemostats is a great saving of time and I think a surer method than tying ligatures I never saw in any clinic full immunity from knots and ligatures occasionally slipping The same may be said of the sac of a hernia, the stump of an appendix or fallopian tube or the neck and vessels of the cystic duct

Closure of deep wound layers is less easy than individual pedicles but shows an equal gain in speed over suture The inner layer of an intestinal anastomosis is very rapidly made by a row of clips In the lumen of the bowel these need not be absorbable, as they fall into the canal later With the horse-shoe clip the parts are held in apposition by a clamping action as by the Murphy button For fascial wound layers the metal must be absorbable Here wound closure is much more rapid than by needle or thread For obliterating varices and angiomas they are also more speedy and bloodless For fixation of certain movable viscera, nephropexy, gastroplication, omental fixation, as in Talma's operation, or various suspensions of prolapsed organs, absorbable metal staples and clips are quite easy and rapid of application This is also true of ligations in continuity of veins or arteries with or without resections of their trunks When as a factor of safety two or more ligatures are desired on one vessel, time lost is much less with clips than with ligatures This applies to operations on aneurysms or large varices or to all large vessels, as the thyroid vessels in lobectomy or the carotid artery when tied for any reason

On the whole I have been more than satisfied so far as we have applied the metal fasteners in our work, and I can see many useful applications not yet fully tested

CONCLUSIONS

1 Speed and safety of hemostasis is much improved by using metal clips

2 If of absorbable metal or alloy they do not act permanently as foreign bodies If of ordinary metal,

they should be attached to cords or chains and later drawn out.

3. Several pure metals are absorbable, but have not quite ideal physical qualities.

4. Efforts to make ideal alloy are encouraging but not yet wholly successful.

5. Other appliances — plates, screws, buttons, bone splints, and wire sutures can also be made of absorbable alloys when perfected.

A STUDY OF ONE HUNDRED SELECTED CASES OF PITUITARY DISEASE*

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AND
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The ductless glands with their important influence on the growth, development and maintenance of the body, physical and mental, occupy a notable position in the realm of medicine today, yet a few generations ago they were wholly neglected and almost unknown.

About the middle of the last century Claude Bernard, Brown-Sequard and others popularized their use in therapy, but the suggestions offered by them were not followed up, and the value of the work then accomplished was largely forgotten. Langley and Gaskell in England, Beedl in Vienna, and Bouchard in France have in recent years vastly increased our knowledge of the action of these glands. On the facts these observers have discovered, a complete system of therapy has been erected and generalizations regarding their influence in disease have been recklessly enunciated as dogmas. Coincidence became confused with causation.

As clinicians add to our store of facts, the skepticism of the validity of these dogmas daily increases. Indeed, we are now in danger, perhaps, of a reaction in which we shall tend not to overestimate but rather to underrate and despise the power of glandular therapy. This tendency is dangerous to progress, and we must counteract it by judicially weighing all theories and by accepting none which are not adequately substantiated. Yet our attitude must not be merely passive. We must patiently strive to gain further knowledge to replace unverified belief in glandular activity; we must patiently add to our store of facts concerning the powers of glandular products and then await the day when a medical Newton will justly correlate these facts and enunciate for us the laws which control them.

OBSERVATIONS IN SELECTED CASES

In this spirit we have studied a hundred selected cases of pituitary involvement which have come under our observation within the last sixteen years. One or the other of us has personally studied each of these hundred cases: forty cases of acromegaly, fifty of hypopituitarism, forty-five dwarfs and one giant. The clinical and other details of this study we shall later publish. Among the symptoms of pituitary disease, such as adiposity, bony changes, sugar tolerance, polyuria and sexual manifestations, we wish, at this time, to discuss only two, namely, sugar tolerance and polyuria.

SUGAR TOLERANCE

Cushing and others maintain that disease of the posterior and intermediate lobes of the pituitary affects carbohydrate metabolism. Cushing reported, in advanced pituitary disease a marked increase in the sugar tolerance. He states that in hyperpituitary conditions sugar tolerance is decreased, in hypopituitary conditions sugar tolerance is increased. Cushing dealt entirely with alimentary glycosuria. Vigevano, from his experiments on dogs, concluded that the entire gland had a greater antiglycosuric effect than had the posterior lobe alone. Blumenthal demonstrated that the rate of sugar absorption by the alimentary canal was inconstant, and Woodyatt and other investigators that a similar lack of uniformity characterized the rate of absorption of sugar introduced intravenously.

The sugar tolerance is determined by the ratio of sugar absorption to sugar utilization. Woodyatt and his co-workers found that, when the sugar absorption was not in excess of the sugar utilization, pituitary conditions, such as acromegaly, gigantism and genital dystrophy, did not influence the sugar tolerance. The results obtained by Cushing, therefore, depended on the inconstant sugar absorbability, via the intestinal mucosa, and not on any change in sugar metabolism which pituitary conditions cause. An alimentary sugar tolerance similar to that described by Cushing may be found not only in myxedema and other morbid states but even in normal subjects, as our studies conclusively demonstrate. In a series of brewers who daily consumed enormous quantities of beer, we never found sugar in the urine, although we tested them repeatedly. We have given large quantities of sugar daily to a number of persons. To the same large dose some reacted with glycosuria, whereas others did not. In pituitary cases, the results of our experiments were as inconstant as with normal individuals.

A study of thirty cases revealed that four patients had diabetes; all of them were of the hypopituitary type; one of them was a dwarf; five had a high sugar tolerance; of these, three were of the hypopituitary type and two acromegalic. Twenty-one had a low sugar tolerance; of these, fourteen were acromegalics and seven were of the hypopituitary type. There is no constancy in the sugar tolerance manifested in these conditions.

No physiologic basis exists for attributing a relationship between the pituitary gland and sugar tolerance. We have, moreover, an absence of clinical basis for this alleged relationship. Sugar tolerance, therefore, must be discarded as a pathognomonic sign of pituitary disease.

POLYURIA

If there is excess of water in the blood, the hemoglobin percentage is low. If there is a diminution in the fluidity of the blood, the hemoglobin percentage is high. Haldane and Priestley used the hemoglobin percentage as a guide in their investigation of the excretion of water from the blood through the kidneys; they gave to men copious drafts of water, and found that they did not thereby affect the hemoglobin percentage. They exposed other men to prolonged sweating and found that the hemoglobin percentage was still uninfluenced. There is, therefore, some mechanism which tends to maintain a uniformity in the concentration of the blood. A fixed relation exists, therefore, between blood concentration and diuresis.

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* Read before the Section on Nervous and Mental Diseases at the Sixty-Eighth Annual Session of the American Medical Association, New York, June 1917.

Excessive diuresis in those who imbibed much water, and scanty diuresis in those who were sweated were in both instances accompanied by a persistence of the hemoglobin percentage at a constant normal level As the urine is not a mere filtrate, any changes which may have occurred in the blood during these experiments were of an imperceptible degree Haldane and Priestley concluded that the variations in the diuresis produced by imbibing water and by sweating were not dependent on alterations in the dilution or concentration of the blood

They next used salt solutions instead of water, and found that when the salt solution was hypotonic or hypertonic before absorption, salts in the economy were added or subtracted by the tissues to produce isotonic solutions When salts were added by the tissues, the electrical conductivity of the blood was reduced When subtracted it was increased The increased diuresis resulted when these changes tended to produce an increase in the blood volume Diuresis follows only when both water and salt are relatively in excess to the other constituents of the blood While this excess prevails, the hemoglobin percentage falls, when it ceases to prevail, the hemoglobin percentage returns to normal So delicate is the mechanism that the first hint of excess brings about diuresis, which continues at a rate that strives to keep the hemoglobin percentage normal Hence the change in the percentage is so slight as to be difficult to detect

Schaefer, Matthews, Aschner, Cushing and others have shown that lesions of the posterior portion of the pituitary gland are accompanied by polyuria Motzfeld, Bab and Maranon have further demonstrated that such polyuria can be checked by administration of the extract of the posterior and intermediate portion of the pituitary gland This check is exerted independent of blood pressure changes and of intestinal absorption Motzfeld believes that the check is due to the action of the pituitary substance on the sympathetic, but others, including ourselves, disagree with him

Dr W M Kraus has undertaken to distinguish a rarity of polyuria in hypopituitary conditions and a frequency in hyperpituitary conditions which we have been unable to confirm From the physiologic manifestations just mentioned, from the pathologic researches of Maranon and others, and from clinicopathologic reports by Boyd, Newmark, Maranon, Bab and others, including our own cases, there is no doubt that the pituitary gland has a powerful influence on the salt content of the blood and hence on its volume From our own work we conclude that the results of this action on the blood volume may be three

1 In cases in which there is no renal insufficiency, polyuria

2 In cases in which there is renal insufficiency of a mild grade, polyuria and edema

3 In cases in which there is marked renal insufficiency, hydremia and general edema without polyuria

CONCLUSIONS

The posterior and middle lobes of the pituitary gland secrete a substance or substances which have, according to our observations, the following among other properties

1 It does not influence sugar metabolism (sugar tolerance is not a sign characteristic of pituitary disease)

2 It controls the salt content on which the electrical conductivity of the blood depends

3 This control is not exercised through the nervous system

4 Disease of the posterior and intermediate portion of the pituitary gland disturbs the fixed ratio of the salt content of the blood which the secretion or secretions of that gland normally maintain

5 Slight disturbance in the control induces alteration in the salt content of the blood and leads to polyuria, if there is renal sufficiency, or to a water logging of the tissues, if there is renal insufficiency

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ABSTRACT OF DISCUSSION

Dr Walter Timme, New York Dr Abrahamson endeavors to simplify the pituitary abnormalities by dividing pituitary diseases into two great classes—hypopituitarism and hyperpituitarism. However praiseworthy such an attempt may be, it is not in accordance with the conditions -A pituitary gland may have an enlarged anterior lobe with corresponding small posterior lobe, therefore neither term, hypopituitarism nor hyperpituitarism, is applicable without expressing the limitation to the particular lobe in question. Again, hyperplasia of the posterior lobe, for instance, may be actually the cause of deficiency in function of the posterior lobe, the terms, therefore, hypopituitary and hyperpituitary, if not qualified, ought to be eliminated from discussion of the pituitary body

As far as Dr Abrahamson's remarks regarding polyuria are concerned, they are beyond criticism when applied to hyperfunction of the posterior lobe One additional statement may not be amiss, however It is that the effect of suprarenal gland on the blood plasma is to diminish its water content, which secondarily also produces a somewhat increased urinary output It is difficult to distinguish always, therefore, whether the underlying cause of polyuria is pituitary or suprarenal in origin That there is no interdependence of glycosuria and pituitary disease, I question seriously One must distinguish the various types of glycosuria Those dependent on real, acute pancreatic disease—pancreatitis or pancreatic new growths—show no involvement of the pituitary, but other types do show such changes Fry, in the *Quarterly Journal of Medicine* (London) reported changes in the pituitary gland in diabetes One clinical fact alone stands out to controvert the position of Dr Abrahamson It is that where pituitary gland is administered directly after meals in some sugar-free individuals, sugar appears in the urine, and if sugar had originally been present, it is increased thereby It is therefore important to give pituitary gland at least one hour after meals The reason assigned for this fact is that pituitary and pancreas are mutually antagonistic. The physiologists have never been able to prove this A proper classification of pituitary disturbances must embrace each lobe individually

Dr D I Wolfstein, Cincinnati The relation of the pituitary glands to polyuria, as brought out by the essayist, interests me I have lately been treating one of the most marked cases of so-called diabetes insipidus I know the term is rather obsolete The patient was carefully studied, and the salt excretion and intake regulated The only agent that had the slightest effect was pituitary extract given twice daily, under the skin, this did influence the amount of urine voided very materially Will the essayist please try to throw some light on the treatment of this affection?

Dr I Abrahamson, New York The point raised by Dr Wolfstein has been definitely settled by Bab Patients suffering from polyuria were used to standardize the effectiveness of pituitary extracts Polyuria was a better term than diabetes insipidus A constant effect on the polyuria due to any cause could be expected after the administration, by hypodermic especially, of the extract of the posterior and intermediate lobes of the hypophysis Confusion was the necessary result when we sought to explain contradictory results or phenomena by assuming two distinct and opposite morbid processes in the same case. One case cannot be held to be hyperpituitary with a dash of hypopituitary disease and another the converse, simply because we could not explain certain manifestations except by some such stretch of imagination

We must think along physiologic lines whenever possible, and explanations to be convincing must not be too strained I therefore cannot agree with Dr Timme's objections

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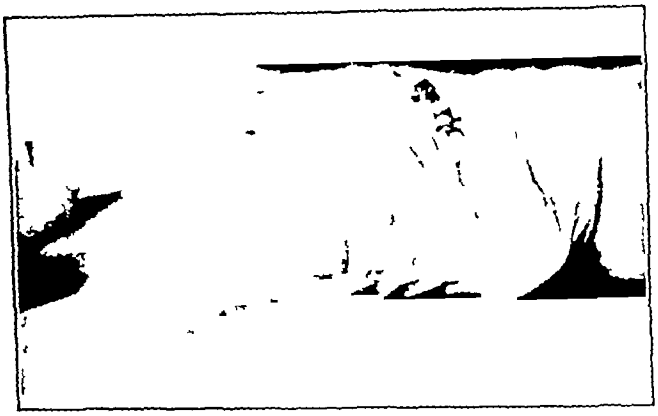
Clinical Notes, Suggestions, and New Instruments

GALLBLADDER BAND

Robert J James M D Seattle

In the accompanying illustration is shown a gallbladder band which I devised, and which we have used in the hospital for the past two years with great satisfaction The patient can turn and lie on either side without leakage of bile, and the bottle can be changed quickly and cleanly These bands are washed and sterilized and kept ready for use A small piece of tape is sewed on the edge of the pocket and tied around the neck of the bottle to keep it steady



Gallbladder band.

REPORT OF A CASE OF EXTREME FECAL IMPACTION

E. Arthur Watson M D, Grand Island Neb

This case, I believe, is out of the ordinary and, as far as the literature to which I have access reveals, and in view of the age of the subject, unparalleled The etiology I cannot explain without considering the possibility of congenital defects and lack of tone due to the condition of the bowel at birth

History—A girl, aged 13, American, born with an imperforate anus the feces draining through the vagina, was operated on five years before I saw her, and the anus established at the normal location In the absence of a sphincter, there had been incontinence The anus was dilated several times in the two years following the operation, but there had been no trouble since that time. At one of the dilations the ampulla of the rectum was found loaded, and was cleaned out The patient had not had the usual diseases of children She had a severe attack of rheumatism last fall, and a fibrillated heart muscle since that time Last fall the physician in attendance noticed a well defined mass in the abdomen but did not have an opportunity of watching the patient, and did not see her again until two weeks before I did At that time he advised that the patient be brought to the hospital and he referred her to me

Examination—April 6, 1917, a tumor completely filled the abdomen It was wedged between the ileum and behind the pubes so tightly that it was immovable. The fundus was well up in the epigastrium with another smaller mass extending from the fundus to the ensiform cartilage Extreme constipation and tenesmus were complained of A stool was procured daily, but was fluid or semifluid The bladder could be felt well up on the anterior surface of the mass There were albumin and an occasional cast in the urine, with an abundance of colon bacilli and some pus The pulse was from 130 to 140, weak and intermittent Attempts to pass the colon tube resulted in extreme pain and tenesmus There was no fecal odor to the patient, nor was she troubled with gas She was markedly cachectic The leukocytes numbered 22 000 No red cell count was made, as a slide was negative The appetite was poor

Operation and Result—A diagnosis of probable uterine fibroid was made, but operation was discouraged on account of the physical condition of the patient After observing the patient for six days and watching the suffering, which had to be controlled constantly with opiates, I volunteered to operate if the parents so wished The following morning the abdomen was opened and the tumor presented itself in the wound The intestine was not visible, and the omentum lay over the anterior surface of the tumor It was very frail, all the fat having been absorbed. The exploring fingers could not be forced around the mass in the pelvis on account of the tightness with which it was wedged Exploration of the fundus revealed the colon entering the mass with a hard, well formed mass of impacted feces lying directly over the larger mass and in the colon just before it entered the tumor The smaller mass was about the size of a large lemon, and was the smaller mass which could be felt in the epigastrium before exploration There were numerous blood vessels of large caliber over the entire mass When the incision was enlarged, the mass could be slightly rotated, and the mesentery could be felt at the vertebral attachment I then thought it was a tumor of the mesentery The mass was hard and smooth, and not at all puttylike An incision was made along the anterior surface of the mass, and an extremely thickened colonic wall was incised The discovery was then made that the extremely distended descending colon was filled with hard, dry fecal matter The intestine was incised for about 12 inches, and the contents lifted out There were also present about 3 pounds of semisolid fecal material and the smaller mass already described The entire descending colon from the splenic flexure to the second portion of the sigmoid was involved in the dilatation The large, dry, mother mass weighed one hour later, 5¾ pounds, and at least 3 pounds of smaller lumps and semisolid material were removed in all The channel through which the stools had passed was along the posterior wall of the sac The intestine was completely severed and both ends brought out on the abdominal wall, and an artificial anus established About 5 inches of redundant intestine were dissected away from the lower extremity We procured free purgation three days later and the patient regained some of her appetite, but succumbed on the seventeenth day from exhaustion and emaciation The heart did much better after operation than previously, but the kidneys continued to give trouble until the end, and were a factor in the termination of life

Fecal impactions and section of intestine

The accompanying illustration gives an idea of the firmness and contour of the mass This was not a diverticulum in any sense of the word, and showed a simple dilatation. The section of intestine shows to some extent the extreme thickening of the wall which had taken place

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street Chicago, Ill

Cable Address . . "Medic, Chicago"

Subscription price . . Five dollars per annum in advance

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SATURDAY, JULY 28, 1917

ADEQUATE RANK AND AUTHORITY FOR ARMY MEDICAL OFFICERS

No intelligent person, inside or outside the profession, is ignorant of the importance of medicine, both preventive and curative, in the world war now raging, on the final result of which depends the fate of many nations, including that of our own. In all the European countries engaged in this conflict, the value of the medical officer and his functions, with a few notable exceptions, seem to be fully appreciated. One of the most striking exceptions is fully discussed in a recent report on the causes of the failure of the British expedition in Mesopotamia. This report, made by a board of nonmedical men, shows that lack of coordination between the chief of staff and the medical officers was an important factor in the failure of the expedition. Medical officers were not sufficiently informed of the extra demands likely to be made on their department, and when the stress came they were not equal to it.[1] The report shows that a medical officer made urgent representations in regard to the actual conditions obtaining, which in his opinion needed prompt action, and for this he was threatened with arrest and removal from his post; but when defeat came, the blame was thrown on the medical department, and the medical officers were censured and told that they should have protested more vigorously.

This is a repetition of our own experience in 1898. Our medical officers at that time were criticized because they did not distinguish between malaria and typhoid fever, and still in *none* of our army camps until the middle of August, 1898, were there the facilities necessary to distinguish between these diseases. They were criticized for the insanitary condition at Chickamauga and elsewhere, although they had protested against these conditions to line officers without effect. The whole story is told voluminously and in detail in the congressional report on the conduct of the War Department in the war with Spain, generally known as the Dodge report.[2]

Our medical officer is going into this war much better equipped than he was in 1898, and consequently with heavier responsibilities. But there is no increase in authority! The line officer who will receive sanitary and other professional recommendations will, it is believed, be more intelligent and more appreciative than were his predecessors in 1898. This is the most hopeful view of the situation; but is the situation fully met? Are the health of our soldiers and the care of the sick and wounded to be threatened by this sword of Damocles—suspended by so fine a thread?

Our medical officers should have higher rank and the increased authority which is secured in military life only through rank. A request to this effect has been made of the War College, with no prospect, up to the present time, of its being granted. It may be worth noting here that the Surgeon-General of the Army is not a member of the War College; neither is the Surgeon-General's office represented in that body.

In 1904 the British War Office was reorganized under Lord Esher, who was requested to provide for medical representation in this office. He replied:

> The Army Council is not and cannot be a representative body as regards the several arms and departments. The Royal Army Medical Corps exists to serve the army in a most important capacity, but the first object must be to create and maintain an army, and this is the function of the Army Council.

This was the opinion of Lord Esher in 1904. Recently[3] the same man writes:

> How much of the suffering undergone by our soldiers since the war began has been due to the short-sightedness of my committee, and notably of myself, will never be known. Certainly the control of the Adjutant-General's branch over the Royal Army Medical Corps was and is responsible not only for the early failure to grip the medical factors of the war but they hampered conditions under which the Surgeon-General has worked. His triumphs and those of the Royal Army Medical Corps have been achieved in spite of obstacles that the subordination of science to ignorance and of elasticity to military discipline explains but cannot justify.

Having failed to secure elsewhere authority adequate to give force to the recommendations of the medical officer, the profession has appealed to the court of last resort, the Congress of the United States. The medical profession believes not only that it has the right to make this appeal, but that this is its duty. The appeal has taken the form of an amendment which is quoted on page 292. The passage of this amendment would give to the medical officers in the Army the same rank that is already bestowed on their fellows in the Medical Corps of the Navy. In the British Army Medical Corps there are three officers with the rank of Lieutenant-General, and twenty-five with the rank of Major-General. This does not include the Indian Medical Service. In the French Army the proportion of general officers in the Medical Corps is quite as high. At present there is only one officer in our entire Medical Corps with the rank of General: Surgeon-General Gorgas. The rank that goes ordinarily with the post of the Surgeon-General of our Army is that of Brigadier-General, Surgeon-

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[1] Lessons of the Mesopotamia Tragedy, editorial, this issue, p 287.

[2] See Medical Mobilization and the War, this issue, p 292.

[3] London Times, Feb 3, 1917.

General Gorgas has the rank of Major-General, specially granted in recognition of his distinguished service in the Canal Zone

The Medical Corps of our Regular Army has rendered the nation service of which we have a right to be proud It has freed Cuba and other lands of yellow fever has made the building of the Panama Canal an accomplished fact, and has opened up the tropics as fit habitations for the white man and his civilization

It must be evident that the relatively low rank under which medical officers serve handicaps their work both individually and collectively It would appear to indicate that the nation places a low estimate on its Army Medical Service—which we are sure is not intended In his civilian work the advice of the medical man is measured by his personal and professional reputation When he becomes an Army officer and puts on his uniform, the worth of his opinion is measured by his rank, the insignia of which he wears, and his opinion is of no more value than the appraisal set on him by his government When he makes a sanitary or other professional recommendation to a superior line officer, the superior grants to the expressed opinion attention corresponding to the rank of the petitioner Higher rank should be awarded to the medical officer, not primarily to increase his pay, stimulate his patriotism or satisfy his pride, but that he may not be handicapped in rendering his best service Let him be in a position to demand, not request, what he knows to be for the good of the Army and of the Nation

THE SPREAD OF INFECTION AS A WAR MEASURE

We have no means of knowing to what extent the reports of the use of bacterial cultures among civilian populations as a war measure are founded on fact Some of the alleged activities of this sort, such as the supposed application of tetanus spores to court plaster, are not likely even if true to be anything more than the vagaries of irresponsible individuals, and can hardly be believed by any one to have official sanction, much less instigation On the other hand, definite charges have been made from authoritative sources that, contrary to the terms of the Fourth Hague Convention, pathogenic bacteria have been employed by official agencies to spread disease among men and animals In the note from the Roumanian Ministry of Foreign Affairs to the governments of neutral states, such specific charges are made in detail and are supported by documentary evidence

Whatever credence one gives to statements of this character, one may question whether any degree of justification exists for such measures It is sometimes said that war is war, that it is all wanton and cruel, and that death by infection is no worse than death by shot and shell Why, it is asked, should any means of crippling the enemy be taboo? Are belligerents to be debarred from use of the most effective methods of warfare because weak-minded people consider such methods unnecessarily brutal? Is not war always brutal, and does not the injury produced by war always spread in widening circles?

To all this the answer is that even in conducting war a choice exists between more brutal and less brutal methods The complete extermination of a conquered populace and its replacement by the victors is not today deliberately advocated by any one, although our savage forebears often adopted such a procedure with complacency While, in this bitterest of wars for many generations, much suffering has been inflicted on noncombatants under the plea of military necessity, it has not occurred that the whole population of a city — Liege, for example — was put at once to the sword as punishment for the temerarious resistance of its forts There are certain limits, albeit not too well defined, to present day ruthlessness Some degree of humanity and forbearance is possible even in war

One of the heaviest blows at civilization in the present contest has been the willingness of some of the combatants to disregard all the restrictions agreed on during the last few centuries for diminishing the brutality of war Military necessity or military advantage has been held to excuse practically every form of violence In calmer times, however, almost all men belonging to the civilized and semicivilized nations have been willing to admit that there are some forms of destruction of life and property that are not justified even under the stress of armed conflict In this class we must certainly place the utilization of pathogenic microbes for spreading infection It does not need much imagination or even knowledge of what such practices may lead to to see in them a serious menace for the future of the world No high explosives or artificial engine of battle can equal in catastrophic possibilities the work of the pathogenic bacteria It is almost inconceivable that responsible men could authorize the employment of such illegitimate weapons of warfare

One of the most tragic features of the present contest, however, is the readiness with which the world opposed to the German government accepts, as true, stories of cruel, ruthless and barbarous behavior Whether or not bacterial cultures were used at Bucharest and other places, many people today believe that they were The way in which the Imperial German Government has made war has caused many people all over the world to lend a ready ear to reports that would under other conditions be classed as idle rumors Nothing is too bad or too impossible to believe In how many strata of society will incredible stories of German warfare run from mouth to mouth for decades! This is one penalty to be paid for the acknowledged facts of German war methods, the invasion of Belgium, the sinking of the *Lusitania* and the devastation of northern France Military advantage is not the only thing of moment to a proud nation It is the great misfortune of the German people that they will be charged for all time with forms of savagery which revolt most of them, and this because their rulers have authorized and carried out a plan of destructive warfare hardly paralleled in the world's history The rest of the civilized world is now in a frame of mind about German war methods such that the attempt to spread infection by bacteria is by many persons no longer considered the incredible thing it would have appeared a short time ago For the sake of civilization, we hope all alleged instances of this sort will be fully investigated

THE TREATMENT OF INFECTED WAR WOUNDS

In a recent lecture,[1] Sir Almroth Wright discusses at length the development of infection in wounds with special reference to treatment, particularly of wounds received in battle He starts on the basis that the defense against infection of the body is due in part to the bactericidal action of the liquid of the blood, in part to phagocytosis by leukocytes The bactericidal action of the blood fluid is dependent largely on its maintaining an antitryptic condition or property — if the serum of an exudate is not antitryptic it is not bactericidal One of the ways in which the antitryptic quality may be reduced or lost is the death or breaking up of leukocytes so that their tryptic ferments are set free and neutralize antitryptic action Under the natural conditions in a wound, and particularly a war wound, in which case there is much injury to tissue, and infectious materials are driven deeply into the parts, situations quickly arise which are altogether unfavorable to the successful operation of the physiologic defensive mechanisms Thus if there are dead spaces or lack of adequate drainage, there cannot be a continuous flow of fresh lymph and a steady reinforcement of leukocytes, the result being accumulation of tryptic fluid — pus — in which bacteria multiply and later pass into the surrounding tissues Under other circumstances the wound surfaces may dry up, thereby preventing outflow of lymph as well as emigration of leukocytes and presenting what Sir Almroth Wright calls a desiccated slough-covered wound in which the infection again finds favorable conditions for rapid headway

These unfortunate events are of course especially to be feared when the wounded lie untreated for a long time on the field or treatment cannot be applied properly because of long transport We know that prolonged suppuration, gas gangrene, general intoxication and infection, ending in death or a more or less incomplete recovery, often only after months of suffering, have been altogether too frequent consequences of wounds received in modern warfare The great problem is to prevent infection altogether, or if it has developed, to restrain and reduce it to such a negligible degree that prompt healing takes place nevertheless Sir Almroth Wright emphasizes on a theoretical basis the value that hypertonic sodium chlorid solution would have under certain conditions, especially during transport when it is not possible to apply with success methods of chemical disinfection After having removed all foreign materials in the wound and after having opened up all potential dead spaces, he would cover the wound with several layers of lint thoroughly soaked in 5 per cent sodium chlorid solution, and on top he would place other layers of lint soaked in saturated sodium chlorid solution, the whole dressing being covered with some suitable impermeable material By virtue of its hypertonicity, the sodium chlorid solution would induce free exudation of serum into the wound and on its surfaces, which would thus, so to speak, be cleansed and protected by the continuous action of a physiologic disinfectant The emigration of leukocytes would be prevented, however, and under some conditions that might be an advantage, under others a disadvantage In desiccated wounds leukocytic emigration is desirable in order to hasten the removal of sloughs, hence in this case a physiologic sodium chlorid solution would be indicated

Sir Almroth Wright's presentation is stimulating, his experiments are ingenious although they do not reproduce the natural conditions of infected war wounds, and he undoubtedly promotes our understanding of the points to be considered in the treatment of infected wounds according to what he calls physiologic principles, but we note with some surprise that we are not informed at all as to any particular results obtained by the method he has outlined The method consequently must be regarded at present as merely an interesting suggestion At this moment the most successful method for the reduction of infection in wounds appears to be that of Carrel Sir Almroth Wright himself says that he regards Carrel's method as "far the most important contribution made to surgical technic since the beginning of the war" The method is now so well known that it is not necessary to go into details After the most painstaking cleansing of the wound and adjacent surfaces, during which every bit of bruised and otherwise injured or unhealthy tissue, all clots and foreign bodies are removed, the entire wound is subjected to a continuous flushing with neutral solution of chlorinated soda — Dakin-Carrel solution — in such a manner that no pain is caused or harm to the tissues, accompanied with frequent change of dressings The basic principle is to reduce the infection to the point that healing proceeds without delay after approximation of the edges by suture and otherwise

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[1] Wright, Sir Almroth The Treatment of War Wounds, Lancet, London, 1917, **1**, 939, abstr, The Journal, this issue, p 308

Incidentally, what Sir Almroth Wright describes as the Carrel method is not, we believe, altogether correct As we understand it, the method does not consist simply of flushing a wound with an antiseptic, it is a combination of procedures by which a chemical substance is used under specific conditions of contact, concentration and duration, and under microscopic control It is this that sterilization would attain, making an easy closing of the wound possible

According to reports by Carrel and others, it is possible to secure by this method complete sterilization of infected war wounds In other words, what seems like chemical sterilization of infected wounds may be accomplished Sir Almroth Wright seems inclined to question whether Dakin-Carrel solution is the best for this purpose, while superior fluids may be discovered, Carrel settled on the use of Dakin-Carrel solution after having tried several other disinfectants because it gave the most satisfactory results Whether the action of this fluid is to be explained as due solely to its direct disinfecting powers or to its favoring the physiologic processes discussed by Sir Almroth Wright may be an open question which could be studied with profit, but there can be no question that Carrel's method marks a long step in advance in the practical treatment of local infections

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LESSONS OF THE MESOPOTAMIA TRAGEDY

Blunders due to incompetence and inefficiency among men of high rank seem to be unavoidable accompaniments of all wars The interest of students of our Civil War has largely centered around such controversies Even in the Spanish-American War, short as it was, there was abundant time for incompetence in high places and mismanagement on the part of those responsible to manifest itself England is today in the midst of a discussion of the Mesopotamia campaign and its consequent horrors A tendency has manifested itself in some quarters, as Sir Victor Horsley, just before he died, predicted would be the case, to make a scapegoat of the medical service Making all allowance for difficult conditions, it must be admitted that the superior medical officers responsible for conditions in this campaign do not make out a brilliant case for themselves While regarded as a "small sideshow" by the British War Office, the mistakes and blunders in Mesopotamia are well worth careful consideration, especially by those responsible for the administration of medical affairs in our own Army Originally planned for the protection of the oil fields above Basrah on the Tigris River, the military expedition which reached Mesopotamia in November, 1914, was ordered by the Indian government to advance up the valley of the Euphrates toward Bagdad, the terminus of the proposed Constantinople-Bagdad Railroad The campaign was for a time remarkably successful, and on Sept 29, 1915, the British troops occupied Kut-el-Amara, 140 miles above Basrah Although the medical equipment of the expedition had at no time been up to its proper strength, there was no complaint during the first part of the campaign In November, 1915, the advance on Bagdad was begun, and at the battle of Ctesiphon a greatly superior Turkish force was encountered and 690 men were killed and 3,800 wounded out of a force of 11,000 British soldiers The troops fell back to Kut-el-Amara, where they were besieged by the Turks until April 29, 1916, a siege of 147 days The collapse of the campaign led to the appointment last August of a special parliamentary commission to inquire into the conduct of the campaign and especially into the provisions which were made for the care of the sick and wounded The report of this commission to Parliament has just been made public While obscured by a mass of official details, the main facts appear to be that medical provisions for the Mesopotamia campaign were from the beginning wholly insufficient, and that from the battle of Ctesiphon to the conclusion of the campaign, there was a complete breakdown of the medical service, with the inevitable result that the sick and wounded were deprived of proper care, lay for days on the battlefield without attention, suffered intolerably through lack of proper transportation facilities, and even when transported to the hospital ships, on account of overcrowding and lack of equipment, were left in conditions of indescribable neglect and filthiness[1] There has been the usual effort to shift responsibility and to attribute the inadequate equipment to "the policy of limiting the general military preparations of India in the interests of retrenchment pursued for many years by the home government and the government of India" Yet in spite of all these generalizations, the parliamentary commission says that Surgeon-General Hathaway, the senior medical officer of the expedition, "did not represent with sufficient promptitude and force the needs of the service for which he was responsible and failed to urge the necessity for adequate and suitable transportation for the sick and wounded" The commission also reports that the officer directly responsible for medical shortcomings is Surg-Gen Sir William Babtie, Director of Medical Services of India, who "accepted obviously insufficient medical provision without protestation and without any adequate effort to improve it" General Babtie was succeeded by Surg-Gen J G MacNeece, July 8, 1915 The change did not improve conditions Surgeon-General MacNeece, the commission says, was "an officer thoroughly desirous of fulfilling the duties assigned to him, but he was a man of advancing years and diminishing strength unequal to the position he was called upon to fill and showing no signs of the vigor and efficiency that were required" The one bright spot in the whole tragedy, according to the

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[1] See London Letter this issue p 301

Medical Press and Circular, is the behavior of Major, now Lieut -Col Robert M Carter of the Indian Medical Service, who risked the displeasure of his superior officers by insisting on telling the facts and endeavoring to better conditions All of his criticisms and suggestions were met with active intolerance on the part of his superior officers, and he himself was treated with great rudeness In fact, General Cowper threatened to put him under arrest as a "meddlesome, interfering faddist" One is irresistibly reminded of our own General Brooke who, at a time when there were 10,000 cases of typhoid fever in his division at Chattanooga, was "annoyed" by the persistence of the medical officers in calling his attention to the infected water supply

In endeavoring to sift out the essential facts from the mass of conflicting testimony and to locate the responsibility definitely, the commission finds that there was too little coordination between the medical staff and the military officers, that the director of medical services was hampered by being excluded from the staff conferences, that there was lack of coordination and cooperation between the different branches of the staff, especially between the inspector-general of communications and the medical service, that the military authorities treated the medical service without consideration, that the medical personnel and staff were deficient in numbers, and that the breakdown of the medical organization had a material effect on the morale of the troops These specifications can all be condensed into two main criticisms, inherent in the organization of most armies, namely, the medical service has not been given the rank or authority which its importance deserves, and the work of the medical department and the views and opinions of medical officers have not been given sufficient weight by military men

The remedy for such situations as the Mesopotamia muddle lies in giving the medical service rank and authority equal to the line officers, and making them, so far as is possible in war time, independent in all matters relating to the health of troops and especially to the care of the sick and wounded To permit an officer with military training alone, no matter how high his rank or how brilliant his attainments as a soldier, to dictate conditions regarding the hygiene and sanitation of troops and the management of hospitals is as ridiculous as it would be to give a surgeon authority over the artillery or the aviation corps Subject always to the necessities of warfare, the military and the medical services must be on an equality Each line of activity requires highly specialized, technical training To permit either one to encroach on the field of the other is not only absurd, but is often suicidal Especially should there be the closest coordination and cooperation between the military and medical officers in order that the Medical Corps may be of the greatest assistance This is the lesson which Japan learned in Manchuria and which the English have demonstrated on the western front

The report of the committee on the Mesopotamia campaign should be given the widest possible publicity in this country on account of the lessons which it contains Old, incompetent and bureaucratically trained officers were given responsibilities which they were unable to carry Younger and more efficient men were threatened with court martial and degradation for telling the facts Sick and wounded men were compelled to live through horrors unspeakable on account of the failure of high officials to understand the conditions under which the campaign was being carried on Medical men were excluded from conferences and not consulted as to plans The one man who told the truth and tried to remedy conditions was regarded as a "pest" and was threatened with court martial Doubtless in the next year or two our country will have its own trials and perhaps scandals of mismanagement and inefficiency, but it is devoutly to be hoped that our Army officials will profit by the mistakes of our allies and that the burden of such mistakes as may be made will not fall on the helpless sick and wounded

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Current Comment

POLIOMYELITIS THIS SUMMER

Last year there were much fear and pessimistic prognosis that the summer of 1917 would witness a widespread extension of the epidemic of poliomyelitis which terrorized the country during 1916 And even this year the prognosis is being repeated Thus, Dr Simon Flexner in an introduction to a book on poliomyelitis by Draper, says, 'Just what the coming summer and autumn may have in store cannot be predicted, but it is altogether too much to hope that the epidemic will not prevail in some degree in this country" The reason for these prognoses is probably the history and epidemiology of the disease, it is transmitted by contact with cases and carriers, and tends to appear along the main routes of communication, one of the important epidemiologic features of poliomyelitis is its seasonal occurrence, namely, that it occurs most intensely during the months of July, August and September, although winter epidemics have occurred in Sweden, Norway and West Virginia While this is perhaps a good basis for endeavoring by improvement in sanitation and hygiene and other methods to prevent a recurrence of the disease, it seems hardly sufficient for regarding with pessimism the outlook for the immediate future So far there is reason to believe that the visitation of this disease during 1917 will be little more than the ordinary incidence According to figures just made public by Health Commissioner Emerson, only seventy-seven cases have been reported to the Department of Health of New York City since Jan 1, 1917 At the same

time last year 1 900 cases had been reported Less
than one third of the cases reported to the department
of health this year as possible poliomyelitis were true
cases of the disease and the condition in New York
City is much the same as that of the whole country
During the first week in July there had been four
cases reported in Illinois six cases in Massachusetts,
twenty-nine cases in Montpelier, Vt, and thirteen
cases in the balance of the state four cases in Minne-
sota and eleven cases in Ohio, with scattering cases
elsewhere

ANOTHER WORD ABOUT MILK

The inevitable desire to help our allies by sharing our food supplies with them has led to a nation-wide speeding-up of food production in certain directions Gardening has unquestionably received a great impetus in a popular way Certain highly valued crops, like the potato, have been planted to the utmost limit of availability of seed resources Many of these efforts will undoubtedly bring a substantial return in the course of the coming season The development of a productive animal, such as the dairy cow, on the other hand, is a slow, seemingly laborious and expensive procedure Quick returns somehow find greater favor than slower results, and thus with threats of the exclusion of suitable dairy feeds from the market, with prospects of increasing costs of feedingstuffs and labor, and with a growing demand for meat, the future of the dairy cow does not always look especially secure How can the milk supply be conserved better than by advertising its sterling worth? Milk is well nigh indispensable, not only because it furnishes an ideal and incomparable combination of food materials, some of which are scarcely obtainable from any other readily available sources, but also because it has become a necessary part of the cuisine from a culinary standpoint Cooking without milk would bring about a little anticipated rebellion both in the kitchen and at the meal service If the physician is willing, as he surely must be, to endorse the slogan, "A quart of milk a day for every child," he should be equally prepared to render advice in respect to some of the pending questions regarding milk products We recommend a few passages from a timely paper on milk in its relation to public health by the bacteriologist Rettger[1] of Yale University The sour milk therapy is thus conceived

> Sour milk is not beneficial on account of the acid or acid-producing bacteria which it contains but like sweet milk tends to encourage the development of an intestinal flora from which the putrefying bacteria are greatly reduced or absent This property milk seems to owe to the sugar which it contains Skim milk exerts the same influence

We have already paid our tribute[2] to the advantage that is certain to accrue from repeal of ordinances like those that have until recently been enforced in New York State which have prevented the use of this valuable food for human consumption What skimmed milk means in actual nutrients is best understood from the report that the annual output of this inexpensive wholesome food which has hitherto been banished both by law and misguided public opinion amounts in this country to 30,000,000,000 pounds[3] If any opponents to the pasteurization of milk still remain, they will find little consolation in Rettger's conclusions

> Pasteurizing or boiling for a short period does not destroy the nutritional value as numerous experiments have without doubt demonstrated although physicians have from time to time claimed that heated milk as a diet for small children is conducive to scurvy Where any doubt concerning this point has existed the feeding of small amounts of orange juice has been sufficient to allay fear

So long as raw milk from tuberculous cows still continues to be used by thousands of consumers daily, this statement cannot be reiterated too often

PHYSICIANS WHO ARE CONSCRIPTED

Some weeks ago we estimated that approximately 20 000 physicians would be subject to conscription[4] A large number at this time find themselves subject to the first call[5] Evidently there is considerable anxiety on the part of many of these physicians as to what disposition will be made of them Judging from the letters we receive, some think they will be put into the "line" Just what position they will occupy in the Medical Corps we have not been informed, but they certainly will not be put into the "line" Presumably they will be detailed to the Medical Departmnet of the Army In fact, it is generally understood that physicians who are accepted by the Exemption Board on the call will be placed at the disposal of the Surgeon-General's Office It has been suggested by those in authority that physicians who are called, or who are subject to call, should make application for membership in the Reserve Corps[5] It will be merely repetition if we again urge that all who are of conscription age, unless they are subject to exemption under the law, should offer themselves as members of the Medical Reserve Corps In this group of men — we may again repeat — come those who are eligible for membership in the Medical Corps which still needs some seven or eight hundred officers[6]

ACCEPTING COMMISSION IN THE MEDICAL RESERVE CORPS

A large number of physicians who have received their commissions as officers of the Medical Reserve Corps have not returned their acceptance papers The War Department is now requesting, in some instances by telegram, that these papers be returned Those receiving such a telegram must not construe it to mean that they will be ordered into active service at once, rather, it means that the Government wants to know—must know—the available numerical strength of the

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[1] Rettger L. F Some of the Newer Conceptions of Milk in Its Relation to Health Scient Month 1917 5, 64

[2] The Effect of War on Dietary Prejudices editorial The Journal A. M A June 23 1917 p 1912

[3] Street, J P Skim Milk—A Valuable and Unappreciated Food stuff the Forecast, February 1917, p 127

[4] Editorial The Journal July 14 1917 p 125

[5] Physicians called now probably will not have to report until between the first and the fifteenth of September, giving ample time to make an honest effort to enter the Reserve Corps voluntarily

[6] It has been announced that no one can volunteer as a soldier after passing the exemption board but we doubt if this applies to physicians In any event no harm will be done by taking the suggested action

Medical Reserve Corps Until a physician has returned his acceptance papers with his oath of allegiance, he cannot be counted To refuse to carry out an implied agreement is not altogether an honorable action When a physician makes application for commission in the Medical Reserve Corps, signs and acknowledges under oath this act and then presents himself for and passes the required examination, by each of these actions he agrees to undertake service He brings disgrace not only on himself, but also on his profession when he neglects or refuses to carry out his contract In past crises the good name of the medical profession has always been maintained by its members They have ever been ready to sacrifice themselves for their country Loyalty to one's calling and love for one's country demand the prompt acceptance of a commission when it is received Few physicians, when they appreciate their responsibility, will refuse to accept the trust which a commission imposes

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CONSCRIPTED MEDICAL STUDENTS

We regret to say that up to this time no definite arrangement has been made regarding the disposal of medical students who may be drafted and ordered into active service There is no doubt, however, that a ruling will be made whereby they will be enabled to complete their medical education It is important, in presenting the matter to the government for action that definite information shall be at hand as to the actual number of medical students who are included in the first call, as well as the total number of medical students registered under the selective conscription act It is requested, therefore, that every undergraduate medical student who is subject to conscription, now or in the future, send in his name, the name of the medical college he attended during 1916-1917, the class in which he was enrolled, his age, etc, including his serial and the numerical order of his draft This information should be sent to the Council on Medical Education of the American Medical Association, 535 North Dearborn Street, Chicago, *at once* A direct appeal by mail is being made to each student, in the hope that a complete list may be obtained promptly, and be available for use when the time comes As
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ical services must be on an equality Each line of activity requires highly specialized, technical training To permit either one to encroach on the field of the other is not only absurd, but is often suicidal Especially should there be the closest coordination and cooperation between the ilitary and medical officers in order that the Medical rps may be of the greatest

Medical Mobilization and th

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SPECIAL ARTICLES

WAR WASTAGE A NOTE OF EXAMINERS OF RECR

SIR WILLIAM OSLER

OXFORD, ENGLA

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27 1917, p 125
will not have to report until
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Reserve Corps voluntarily
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done by taking the suggested action

In the grim game of war bullet
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wounded to those who have
another group, the unfit,
recruiting office, as they furnish a large contingent in our hospitals and add a needless burden of transport, care and pension

What I desire to urge in a few words is the necessity of stopping at its source, this group It is impossible to deal with all types of unfit men, but let me briefly indicate those who should be kept at home

First, the Mouth Breather "Shut your mouth and save your life" is the title of Kit Catlin's famous pamphlet, which should be *reprinted every few years for distribution* The original title of the pamphlet just referred to was "The Breath of Life" and Nature meant this to pass through the nose, an organ which medically speaking reaches to the diaphram Blocked nostrils mean (1) weakened tonsils and pharyngeal resistance, (2) enormously increased liability to bronchitis and catarrhal troubles of all sorts, and (3) lowered defense against the pneumococcus group The hospitals have had to bear the strain of caring for hundreds of these men who should never have passed the examining board No matter how good his chest, or how keen he is to go, or how good his muscles, be merciful to the Army and keep the mouth breather at home Campaigning is not for him

Second, the Neurasthenic, who is not so easy to catch, as the signs are deceptive, and he may come up in good form. Moreover, he is keen and alert and usually anxious to go The history is all important. Has he had a break down? There are many groups, the worst coming from men of sedentary occupations A great many get into the army, a few pull through all right, but what I would urge is, try out the doubtful cases in the home camps The trenches is no place for a man with unstable vasomotors In the *strain of war* they break like dry twigs and become a heavy burden in the hospitals and convalescent homes In any case when in doubt give the country the benefit

Third, the Hippocratic Chest, as it may be called, long, narrow, thin and with, as so often happens, the vertically placed low heart Cut out unsparingly the owners of these
s and heart are not in a good "case" the head is of no
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one of the impo sancy for a man who has never been
myelitis is its seasonal to venture to give advice to his
occurs most intensely during the months of July, August and September, although winter epidemics have occurred in Sweden, Norway and West Virginia While this is perhaps a good basis for endeavoring by improvement in sanitation and hygiene and other methods to prevent a recurrence of the disease, it seems hardly sufficient for regarding with pessimism the outlook for the immediate future So far there is reason to believe that the visitation of this disease during 1917 will be little more than the ordinary incidence According to figures just made public by Health Commissioner Emerson, only seventy-seven cases have been reported to the Department of Health of New York City since Jan 1, 1917 At the same

STANDARDIZATION OF THE PRACTICE OF MILITARY SURGERY—THE CLINICAL SURGEON IN MILITARY SERVICE*

GEORGE W CRILE, M D
Major M R C, U S A Director Base Hospital No 4
FRANCE

A study of the actual working of the French and British systems of military surgery reveals one important defect—a defect recognized by the French and British military surgeons themselves There is a lack of continuity in the surgical treatment as the patient is passed from one hospital to another from the front For instance a patient at the regimental station may get a Wright salt pack, at the field hospital eusol[1] at the evacuation hospital a bismuth iodoform-paraffin dressing, at the base hospital, neutral solution of chlorinated soda Carrel-Dakin As to appliances he may start with a Thomas splint, get plaster at the next station, Blake's splint at the third, and at the last, go back to a Thomas The British surgeons are splendid, the British consultants are distinguished, but the system is illogical in this respect One consultant correlates the work at the casualty clearing station for a given zone (U S evacuation hospital) and has no supervision over the work either in advance of this zone or behind it, another consultant correlates the surgery of a group of base hospitals but has no supervision over the work either in advance of this zone or behind it, that is to say, as far as continuity of treatment is concerned, the line of transportation is broken transversely correlation, if it exists at all, being accidental not planned

ORGANIZATION OF AN ARMY CORPS

It is obvious that a common training a common experience, alone will give a necessary military and professional cohesion which will lead to the achievement of standardization To this end the organization of an army corps should include

(*a*) A professional and nursing staff the majority consisting of medical officers and nurses who have had similar training, that is, members and graduates of the same medical school, teaching hospital and nursing training school The clinical director of the surgical service of an army corps should be the surgical chief of the hospital and the head of the surgical division of the medical school

(*b*) The establishment for each army corps of a temporary field training school for surgeons nurses and orderlies at a large base hospital in active operation from the personnel of the following teaching organizations

(*c*) The training of surgeons nurses and orderlies in the wards of the teaching hospital before assignment to duty

INSTRUCTION IN MILITARY MEDICINE

During time of peace, the students in the medical school would receive a certain amount of instruction in military surgery The house staff of the hospital would receive special military instruction. With perhaps only minor changes the hospital would use the same methods and appliances in time of peace as would be employed in time of war For example I am using in my work abroad the same methods appliances and anesthetics and the same organization I use in Lakeside Hospital

In this way the leading medical schools and the teaching hospitals could in time of peace cooperate under the direction of the surgeon-general in a permanent preparedness the same organization in time of war establishing field training schools for surgeons, nurses orderlies, and others

A field base hospital would be the proper place in which to establish a field training school Since the most important surgical work is at the casualty clearing or evacuation hospitals the staffs of the evacuation and of the field hospitals should be drawn from the best surgeons and nurses who have been trained in the base hospital If possible, a civilian surgeon should be given no post until he has received some practical experience and training in the base hospital The regimental medical officers also should have seen duty in the base hospital By such an arrangement there would be approximated a continuity of treatment

The base hospital would act not only as a training school and clearing house for the professional staff, but also as a center for the prosecution of research and a testing station and clearing house for methods of treatment, instruments and appliances

The directors would constitute a clinical medical board whose duty it would be to coordinate the clinical and scientific experience of the whole service An army medical corps thus prepared would be completely standardized as to methods, surgical conceptions, instruments and appliances, and continuity of treatment from the time of injury to discharge would be established

THE CIVILIAN PHYSICIAN IN THE ARMY

This war has shown (*a*) that rarely do surgeons—especially surgeons distinguished as practitioners, as teachers, or in research—become good executives or administrators, and (*b*) that equally rarely do good executives or administrators become clinicians

In the organization of the Field Service of the American Army, therefore the clinical and executive functions should be clearly differentiated, as follows

1 The regimental surgeon must combine maximum clinical with minimum administrative function

(*a*) For the paper work, transport etc., the clinician should be guided and relieved by the administrative and executive organization, and

(*b*) For the treatment of wounds he should be responsible to the clinicians at the Casualty Clearing Station and Base Hospital

2 At the Field Dressings Station, also the surgeon should combine maximum clinical with minimum administrative *function*

3 At the Casualty Clearing Stations (U S evacuation hospitals) and the base hospitals, the clinical and the administrative organizations should be clearly differentiated but obviously they should work in complete harmony

Here the commanding officers as a rule are members of the regular army Clinicians are usually drawn from civil practice. By the separation but correlation of their functions each group is occupied along natural lines, and the best results are achieved for the service and for the greatest development of the individual

ORGANIZATION OF ADMINISTRATIVE WORK

The work and the organization of the administrative side is obvious—not so obvious is the work and the organization of the clinical side, for certain important changes have been brought about by the experience of this war Of first importance among these changes is the fact that, while we have organized most highly for surgery at the base hospital—and at the beginning of the war the base hospital was the place where the most important surgical work was done—*now* the most important work is done at the casualty clearing stations (U S evacuation hospitals) Our best operating teams, therefore, should not be held at the base hospital, but the ablest and freshest should be assigned to the advanced posts

Colonel Kean's base hospital organization is excellent, but his organization should include the casualty clearing station (evacuation hospital) and beyond that the field and regimental stations—a complete sector From the base hospital teams of clinicians in succession should go to the casualty station and further stations for terms of duty, and when fatigued should return to the base hospital Base hospitals are now serving as quiescent evacuation hospitals, where cases come whose fate has been more or less established at the casualty clearing stations

The work at the base hospital is interesting—is important, but less interesting less important from the surgical standpoint than the work at the casualty clearing station

If the scope of Colonel Kean's organization were to be augmented so as to include the complete group described above, and instead of organizing base hospitals alone, he

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* Mailed June 6 received July 16

[1] Eusol is a nondescriptive name applied to a solution of hypochlorous acid

were to organize clinical groups for a complete sector, to assure continuity of treatment from the field to recovery or return home, there would result more efficient treatment for the wounded, and greater interest and development for the clinician

HOSPITAL CAPACITY IN THE FIELD OF WAR

The French and British have found by experience that the hospital capacity planned for at the beginning of the war was wholly inadequate The following points are drawn from their experience

1 On account of the remarkably wide and sudden fluctuations in the number of casualties, hospitals should be so constructed and their personnel so organized as to provide for a large crisis expansion

2 The newer base hospitals here have a capacity of from 2,000 to 3,000 beds The capacity of the Casualty Clearing Stations (U S Evacuation Hospitals) varies from 500 to 1,000 beds The larger size has the following advantages (*a*) economy in operation, (*b*) development of a strong professional staff, (*c*) large convoys can be cared for—the sick and wounded must be considered on a wholesale and not a retail basis

3 The hospital grounds should be in excess of present needs to allow for rapid expansion for crisis needs

4 The hospitals should be so planned that patients may be conveyed to all parts on wheels If patients must be carried, there is always the chance, in the strain of a crisis, that the bearers may become exhausted and the whole system break down It is very difficult to plan for receiving and caring for say 800 patients in a day, yet there have been times in the experience of every active hospital when more than half of its entire capacity was thrown upon it in a day There is feast or famine *Nothing could be more regrettable than to fail to provide sufficient capacity for emergencies*

5 *Crisis Expansion* is splendidly provided for in British hospitals by tents containing closely placed rows of board cots These are not used during quiescent periods but are filled in crises Emergencies are further planned for in advance by the continual evacuation of patients to the home stationary hospitals

6 The receiving organizations also must provide for crisis expansion (*a*) It should be so arranged that the entire hospital can be filled within twenty-four hours (*b*) To avoid blockade, the point of exit for the ambulances should be opposite the point of entrance (*c*) The space should be so arranged and the reception personnel—stretcher-bearers, etc —so organized that a number of ambulances can unload simultaneously, and the patients be distributed to their cots with no confusion and with minimum delay

7 The casualty clearing hospital is the bag for the field hospitals, the base hospital for the casualty clearing hospitals Crises must be planned for in advance by constant evacuation all along the line

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GIVING THE MEDICAL OFFICER THE RANK TO WHICH HE IS ENTITLED

On July 20, Senator Owen introduced an amendment to Senate Bill 1786, which is of considerable importance at the present time It is as follows

"On page 7, line 20, insert the following at the end of section 10
"*Provided*, That hereafter the commissioned officers of the Medical Corps of the Regular Army shall be distributed in the *several grades* as follows

		Per Cent
		25
Major generals		25
Brigadier generals		4 00
Colonels		8 00
Lieutenant colonels	23 5	
Majors	32 0	
Captains	32 0	87 5
Lieutenants		
		100 00

"Provided, That when called into service the numbers of the officers of the Medical Reserve Corps shall be seven to the thousand of men in the National Guard and National Army and the relative grades of the officers of the Medical Reserve Corps shall be the same as the grades of the Regular Army

"The President shall have authority to appoint officers of either corps as 'consultants,' with the duty of acting in an advisory capacity, making inspections and reports on medical, surgical, or sanitary questions, and such other duties as may be required by the chief of the Medical Department"

In introducing the above amendment Senator Owen submitted arguments in the form of a memorandum furnished by Dr Victor C Vaughan, a part of which memorandum we reproduce

ARE WE TO FORGET THE LESSONS OF 1898?

This is a question now being asked by medical men all over this country We have no desire to recall the sad story of typhoid fever epidemic among our soldiers in 1898 unless we may profit by doing so It may be well for us to remember that out of a total of 200,000 enlisted men in that war, more than 20,000 developed this disease But, says one, vaccination now prevents altogether or greatly lessens the chances of developing typhoid fever, and such an epidemic can never again occur This may be true, and is undoubtly *partly true*, at least of typhoid fever, but there are other diseases for which, unfortunately, we have no protective vaccination Some of these diseases are diarrhea, dysentery—both bacillary and amebic—scarlet fever, measles, various forms of meningitis, poliomyelitis, pneumonia, tuberculosis, etc. All infections have not yet been conquered Among the causes of the fearful diseases of 1898—and the causes were many—was the lack of authority on the part of the medical officer There is abundant evidence of this in various government documents In the "Report on typhoid fever in United States military camps in 1898" the evidence that the superior authority of the line officer was responsible in many instances for the insanitary condition of the camps is abundant This report tells us that many commands were unwisely located, and often this was done in the face of remonstrances on the part of the medical officer Medical officers of the Seventh Army Corps generally condemned the location at Miami, and yet regiments were kept on this site until they were much reduced by illness, and at Chickamauga some regiments were placed on ground so rocky that the construction of latrines of proper depth and width was impossible Other camp sites received the surface washings from adjacent commands Some were contracted into half the regulation space Many regiments were compelled to remain on the same site until the soil became bady polluted, notwithstanding the fact that there were many broad acres around about, and no hostile army was nearer than Habana From this report we make the following quotation "There were regiments at Chickamauga that did not move a tenth of an inch from the time of arrival in May to that of departure late in August Requests for change in location made by medical officers were not always granted As an illustration under this head, we may call attention to the official records of the Fifth Pennsylvania This command reached Chickamauga Park, May 20, and was, unfortunately, located on low ground Requests for a change in location were repeatedly sent in during June and July The soil became muddy, the camp received the washings from camps above, the sinks rapidly filled with water and overflowed, and still requests for change in location were not heeded until August 12 As we have seen, some of the regiments were improperly located from a sanitary standpoint This was done by superior line officers, and sometimes in the face of protests from the medical officers"

This report advised that greater authority be given medical officers in all questions relating to the hygiene and sanitation of camps, and now, as we are going into another war, the line has one general officer for every 167 commissioned officers while the Medical Corps has but one, whatever the number of commissioned officers may be, and in an army of 1,000,000, the number of commissioned medical officers will be not less than 7,000

The medical profession requests that one-half of 1 per cent of commissioned officers in its corps have the rank of general officers This seems a modest request and is allowed in the Navy, but, for some unknown reason, has so far been denied the Army One who has served in the Medical Corps can understand and thoroughly appreciate the hesitancy with which a lieutenant in that corps may recommend to a colonel of the line that a camp site be changed or that some other sanitary improvement is desirable, and one who served in the Medical Corps in 1898 knows full well the reception such a recommendation frequently met at that time, and he can guess at the reception it is likely to receive in the future under similar conditions If any one has doubt concerning the attitude of many line officers of high rank in 1898 toward the recommendations of medical officers, he should read the testimony of Major-Gen Brooke and other officers in command in the camps in 1898 This testimony may be found in the volumes of the congressional inquiry into the "Conduct of the War Department in the War with Spain," generally known as the Dodge report

The commanding line officer at Chickamauga took no pains in his testimony to show his contempt for the advice of his own medical officers and this contempt and disregard constituted large factors in filling the hospitals and graves with typhoid cases We have not place here to quote largely from his testimony but a few sentences of the testimony of General Brooke may be given

Q Had any of the wells General been condemned by the Medical Department prior to your leaving [Chickamauga]? —A By alleged Medical Departments Two of them were erroneous I believe after investigation made by myself The one in front of a South Carolina regiment which I believe, really to have been perfectly pure water There was afterwards discovered a surface well which had been walled up and water slipped in from which this regiment—this was reported to me—used the water That well was not far from a large sink and possibly on lower ground I never could understand from my knowledge of rocky strata how that well could have been contaminated Another well lying on the road between Alexander House and Jay s mill was also condemned I drank of that well water every time I passed it until somebody broke the pump to pieces I suppose it was some of our energetic medical fraternity who had spent their time in finding that there was a suspicion of these two wells and then I did not bother further about it (Conduct of War Department in War with Spain vi, 3080)

In this camp there were about 10 000 of General Brooke s troops affected with typhoid fever about 700 of whom died This was 25 per cent. of his command

It probably took a large part of the remaining troops to take care of those who were sick. This excellent general of the line could not understand the folly of medical officers who pointed out that the water was infected and himself drank from infected water and notwithstanding this by the providence of God he escaped because he had had a previous attack of typhoid fever and was himself immune God bless the line officer and God save the soldiers of the United States from his ignorance of sanitary law

On the following page there is a statement of the insanitary condition of Camp Thomas made by the medical officer of the Twelfth New York Infantry The commanding line officer was so incensed at this report that he said 'If you will give me a copy of that report I will see that that young man goes before a court-martial for the sort of statement he has made there, if he is not protected by this commission

This reminds me of the case of Lieutenant Edger in the Philippines who stamped out an attack of cholera in an adjacent village near Santa Cruz where eighty cases occurred the first day and where half the people in the town died in less than sixty days, approximately 1 000 in number This young medical officer so far protected the American soldiers adjacent that not one of them was lost with cholera but in his vigilance and strenuous effort to protect them he was court-martialed by the officer of the line in charge and punished on the ground of insubordination when he insisted on taking what he deemed necessary sanitary precaution

This young lieutenant is now in the Medical Department and is available as a witness if any statesman desires to summon him

On July 17 1898 the chief medical officer at Chickamauga addressed a letter to the Adjutant-General containing recommendations concerning the improvements of sanitary conditions In brief, the letter contained the following recommendations

1 That the Signal Corps which had occcupied the same site for several months and which was crowded should be moved

2 That selected places should be designated as dumping grounds and all the waste should be collected and deposited on these places instead of being scattered through the camp

3 That so far as possible all camp sites should be changed

4 That the hospital of the first division of the corps be moved from the unsanitary position they occupied to a more healthful location.

5 That the village of Lytle, which was a sanitary menace to the troops, should be cleansed

6 That all condemned sources of water supply should be effectually closed

7 That only filtered or boiled water should be used by the soldiers

8 That all hucksters selling doubtful food or drink should be expelled from the camp

9 That there should be careful supervision of all food and drink sold in the canteens

These recommendations made in July were unheeded at the time

In his testimony, General Brooke spoke of the letter containing the above recommendations as follows "I did not regard his letter in a very serious sense I do not know how he came to write it There was much complaint in that camp from men of his own profession as to his action He caused me more trouble and annoyance than any one ever did"

Had the recommendations contained in this letter which annoyed the senior line officer been taken seriously in July the fearful harvest of sickness and death in August might have been averted

Ninteen years have passed since our little war with Spain, and we have crossed the threshold of a great war with Germany, Austria Bulgaria and Turkey This war begins with the medical officer possessed of no more authority than he had in 1898 Will his recommendations be as futile as they were then? The medical profession has always been responsive to its country's demands whether in war, in pestilence, in flood or in famine Conscription has never been necessary to fill its quota Medical officers will do their best and will present their recommendations to superior line officers but they realize that these recommendations are likely to receive scant attention and that the medical officer will be compelled to work under a heavy handicap The government stamp placed on the medical officer indicates the opinion that the government has of the value of his services, and that his recommendations will receive from line officers any different consideration from that accorded them in 1898 is not probable At present the Army Medical Corps has no representation on the general staff or in the war college

Will it be possible that camp sites both small and great, will be selected as they were in 1898 without consultation with the Medical Corps? And are we justified in feeling that we may have some reminders of the experiences of 1898? According to the testimony of the Surgeon-General recently given before a medical committee, the relative number of trained medical officers is not as great now as it was at the beginning of the Spanish War We had then seven per thousand We have now about five per thousand

THE ENGLISH RECOGNIZE THE IMPORTANCE OF GIVING AUTHORITY TO MEDICAL OFFICIERS

In 1904 the English war office was reorganized by a committee the chairman of which was Lord Esher In this reorganization no provision was made for a representative of the medical army corps on the general staff, or what corresponds to our war college At the time the surgeon-general complained of this action In reply to this complaint Lord Esher's committee stated that while too much importance could not be attached to the sanitary service of the army in peace or in war the committee could not accept the views of the surgeon-general Lord Esher's committee continued

The army council is not and cannot be a representative body as regards the several arms and departments The Royal Army Medical Corps exists to serve the army in a most important capacity but the first object must be to create and maintain an army, and this is the function of the army council. To admit the principle of representation would destroy the character of the council'

This was the opinion of Lord Esher in 1904 Recently (London *Times* Feb 3 1917) Lord Esher writes as follows

How much of the suffering undergone by our soldiers since the war began has been due to the shortsightedness of my committee and notably of myself, will never be known Certainly the control of the adjutant-general's branch over the Royal Army Medical Corps was and is responsible not only for the early failure to grip the medical factors of the war, but they hampered conditions under which the surgeon-general has worked. His triumphs and those of the Royal Army Medical Corps have been achieved in spite of obstacles that the subordination of science to ignorance and of elasticity to military discipline explains but can not justify "

THE RANK AND AUTHORITY OF THE MEDICAL OFFICER

When Stanton was Secretary of War and Hammond Surgeon-General early in the Civil War, the latter made a request of the former for advanced rank for medical officers The great Secretary of War replied with a question "Will increased rank make your medical men better doctors?" The Surgeon-General replied with another question "Does increased rank make line officers, quartermasters, and those in other corps more proficient?"

There are two important considerations in regard to the rank and authority of Army medical officers In the first place, the higher the rank obtainable the better the class of young physicians attracted to the corps When a young man knows that whatever he may do, however skilful and energetic he may be, whatever discoveries he may make, whatever sacrifies he may undergo, the rank of colonel, with a pay of about $5,000, is the best that he can possibly look forward to in his old age, it must be acknowledged that the temptation to enter the Army medical service is not great

In the second place, and this is of more importance, rank in the Army necessarily means much A request or a recommendation from a colonel or a general will receive more consideration than when it comes from a lieutenant Much of the disgrace of 1898 and the disregard shown their recommendations by superior line officers was due to the lack of rank and authority among medical men

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Specialists Wanted for Medical Service in Cantonments

The Surgeon-General of the Army wishes the names of men who are willing to accept active service and who have had training in bacteriology, serology, pathology, dermatology and venereal disease Such men are asked to send their names at once to the Surgeon-General The service immediately contemplated is in the cantonments where troops will soon be mobilized

As we understand it, the men asked for by the Surgeon-General in this notice are those who have had special training and experience in the fields mentioned Men are wanted, (1) who are competent to take charge of hospital services in these specialties, and (2) younger men who have had special laboratory or clinical training, and who can carry out scientific methods of diagnosis and treatment These men will be needed for immediate service In making application a statement should be given of experience and training These positions will offer unusual opportunities for usefulness

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Red Cross Sends Commission to Roumania for Relief Work

As a further step in its program for basing American relief work abroad on accurate surveys of conditions, the Red Cross war council announces the dispatch of a Red Cross commission to Roumania The commission is headed by Henry Watkins Anderson, a lawyer of Richmond, Va It will undertake at once, in addition to its investigation of sanitary and health conditions, actual relief work among the Roumanian refugees Twelve doctors and twelve nurses accompany the commission Quantities of medical supplies, serums, vaccines and foodstuffs urgently needed in Roumania are being sent with the commission by the war council A special emergency appropriation of $200,000 has been voted for Roumanian relief

MEMBERS OF COMMISSION

In addition to Mr Anderson, the chairman, the members of the commission to Roumania, as announced by Mr Davison, are Arthur Graham Glasgow, an engineer Washington, D C , Dr Francis W Peabody, Boston, who represented the Rockefeller Foundation in its medical investigations in China , Bernard Flexner, Chicago, a lawyer, who has taken a prominent part in many sociological movements in the Middle West , Dr H Gideon Wells, Chicago, professor of pathology in the University of Chicago , Dr Roger Griswold Perkins, Cleveland, professor of hygiene, Western Reserve University, and Dr Robert C Bryan, Richmond, Va Doctors and nurses of the medical unit accompanying the commission are Dr W D Kirkpatrick, Bellingham, Wash , Dr Richard Penn Smith, Fort Loudon, Pa , Dr D J McCarthy, Davenport, Iowa , Dr George Y Massenberg, Macon, Ga , Dr R H Rulison, Syracuse, N Y , Dr B C Hamilton, Syracuse, N Y , Dr Benjamin Earl LeMaster, Macomb, Ill , Dr Louis H Limauro, Lynn, Mass , Dr E F Hird, Bound Brook, N J , Dr W T Lowe, Pine Bluff, Ark., Dr Joseph P H Grener, Chicago , Dr Feo Duro Guca, Chicago , Dr William J Kucera, New Prague, Minn , Florence Patterson, head nurse, Washington, D C , Rachel C Torrance, New York , Katherine Olmstead, Milwaukee, Wis , Alma Forester, Chicago , Alice Gilborne, Chicago, and Anna T Pederson, New York.

Enlargement of Training Camps for Medical Reserve Officers

Authority has been issued to increase the training camps for medical reserve officers at Fort Riley, Fort Oglethorpe and Fort Benjamin Harrison to 1,000 medical officers each In addition to the other formations previously authorized for purposes of training and preparation, an evacuation hospital will be organized in each camp

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Training Camp for Ambulance Service at Allentown, Pa

A training camp for special ambulance work has been organized at Allentown, Pa At this camp the Medical Department of the Army has at present 4,700 officers and men Major E E. Persons is in command of the camp About 75 per cent of the enlisted personnel are college and university students

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Training School for Colored Medical Officers

In connection with the training camp for colored soldiers at Fort Des Moines, Iowa, there will be organized a training school for colored medical officers with ten regimental sanitary detachments

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Additions to Medical Corps

About ninety candidates qualified in the June examination for appointment to commissions in the Medical Corps of the Army ——About 235 candidates qualified in the June examination for appointment as assistant surgeons in the U S Navy

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Emergency Hospital Buildings

The Secretary of the Navy has submitted to Congress a supplemental estimate for the appropriation of $2,200,000, which is urgently required for the construction of emergency hospitals at New York, Annapolis, Md , Quantico, Va , Key West, Fla , Great Lakes, Ill , Mare Island, Calif, and Puget Sound, and additional buildings needed at Newport, R I, and Norfolk, Va

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Physicians at Fort Benjamin Harrison

To the Editor —Careful search of the list of medical officers given in special article about this camp in issue of July 21 of The Journal fails to show the names of Charles E Cook, Jr , in the list of doctors from Maine and Charles H Merrill of Michigan Charles E Cook, Jr , and Charles H Merrill have both been in the camp continuously from the first week of the course and we see no reason why our names should be omitted

Charles E Cook, Jr.,
C H Merrill,
Fort Benj Harrison, Ind , Co 4, M O T C

The Salary of Medical Reserve Officers

A physician asks 1 Do medical officers receive full salary while in training? 2 What are the necessary expenses? 3 How often is the salary paid? 4 Could a medical officer have part of his salary paid to his wife in the United States while he is in France?

1 A medical officer assigned to active duty in a training camp receives the salary of his grade while undergoing training 2 His necessary expenses include outlay for uniform and equipment and sufficient capital to pay expenses during the first month prior to receiving his pay These expenses include "mess" and incidentals, and will probably amount to a minimum of $35 per month The cost of a minimum equipment averages about $65 3 Medical officers are paid monthly 4 Yes, by special arrangement, consult the quartermaster in charge

Orders to Officers of the Medical Corps

Sick leave of one month to Lieut Col Henry D Snyder M C

Capt George B Foster, Jr, M C, with his enlisted personnel and all equipment to Atlanta Ga for establishing a department laboratory at that place

Capt Edward C Huber M C, to Chicago for duty

Capt Frederick S Wright M C. to Fort Adams R I and report in person to the commander of the provisional brigade C A, for duty

First Lieut Arden Freer M C, to Camp Wilson Fort Sam Houston, Texas Provisional Ambulance Co B for duty

Capt Luther R Poucet M C to Louisville, Ky, and Capt Kerwin W Kinard M C to Chillicothe Ohio as camp sanitary inspectors during the period of construction of cantonments

Capt William K Bartlett M C. to duty and station at Des Moines

Master Hospital Sergt Edgar T Hitch Med Dept Fort Bayard, N M to the Army and Navy General Hospital Hot Springs for duty

Sergt. 1st Class Walter H Bailey, Med Dept, Fort Constitution N H. to Fort Andrews Mass

Sergt 1st Class Oscar N Everett, Med Dept, to Regan Barracks Albany for duty

Hospital Sergt Francis J Eiseman Med Dept Manila, will be relieved and sent to Chicago for duty

Sergt. 1st Class Joseph Schneider, Med Dept to medical supply depot Atlanta Ga., for duty

Orders to Officers of Medical Reserve Corps

ALABAMA

To Army Medical School, Washington, D C for instruction, Lieuts Henry Wiley Grady and Karl Frederick Kesmodel Birmingham

To Camp Wilson Ft Sam Houston 7th Field Art Lieut William T Weissinger Uniontown

To Ft. Benjamin Harrison for instruction Lieut C R Palmer, Tuscumbia.

ARIZONA

To Provisional Ambulance Co B Camp Wilson Ft. Sam Houston Lieut Bascom F Morris Tucson

ARKANSAS

To Army Medical School Washington, D C. for instruction, Lieut Horace F Villars Little Rock.

CALIFORNIA

To Army Medical School Washington D C. for instruction Lieuts. Oral Bevaley Bohbaugh Reedley John Jay Moore Soldiers Home, and James Archibald Orbison Whittier

To Ft Benjamin Harrison for instruction Lieut H M Hawkins San Francisco

To San Francisco Capt. James G Cumming Berkeley

To report by telegraph to commanding general Western Dept., for assignment to duty, Capt Joseph G Evans Los Angeles

CANAL ZONE

To Army Medical School Washington D C., for instruction Lieut Tom Sperring Mebane Panama City

COLORADO

To Ft. Riley for instruction Lieuts G W Bancroft Colorado Springs B C Dorset Denver A W Rew Ft Collins, and E G Edwards La Junta.

CONNECTICUT

To Army Medical School Washington D C for instruction Lieuts John Joseph Carden Bridgeport and Donald Gardner Russell Wallingford

DELAWARE

To Ft. Benjamin Harrison for instruction Lieut. B A Jenkin Wilmington

DISTRICT OF COLUMBIA

To Washington D C to Army Medical Museum Major F H Garrison Washington To Army Medical School Lieuts Burgh Smith Burnet John Marion Stanley and Ernest Kenneth Stratton Washington

To Baltimore for instruction in military roentgenology Lieut Walter Van Sweringen Washington

To Camp Wilson Fort Sam Houston Lieut. Herbert C Neblett Washington

To Fort Benjamin Harrison for instruction Capt. J L. Norris Washington

To Fort Riley for instruction Lieut. Louis A. LaGarde Washington

To Walter Reed Hospital Takoma Park, Capt. John H Selby Washington

To duty with Sixth Engineers, Washington D C Capt. Edward B Jones Washington.

FLORIDA

To Army Medical School Washington D C. for instruction Lieut. Bascom Headen Palmer Tampa

To Fort Benjamin Harrison Lieut. Charles S Cooper St. Cloud

To Fort Oglethorpe for instruction Lieut Fay A Cameron Tampa

To Richmond Va for instruction in military roentgenology and then to Fort Oglethorpe training camp for duty, Lieut John P Long Lake City

GEORGIA

To Ambulance Co No 5 Camp Funston Leon Springs Lieut Edward L. Moore Statesboro

To Fort Oglethorpe training camp for instruction Lieut. F X Mulherin Augusta

IDAHO

To Fort Benjamin Harrison Lieut Fred R. Patton, Roselake.

ILLINOIS

To Army Medical School, Washington, D C. for instruction, Lieuts John Edwin Robinson and Leonard Webster Weaver Chicago

To Champaign, Ill, as post surgeon at Ground School, Av Sec, S C, Lieut James H Finch, Champaign

To Fort Benjamin Harrison for instruction, Lieuts F E Browning, Chicago and Tom Kirkwood, Lawrenceville

To examine National Guard and then to Fort Benjamin Harrison for instruction, Capts Charles H Parkes, Chicago William J Uppendahl, Peoria Lieuts Grover C Otrich, Belleville Wilbur G Little, Irving Perrill Frederick J Riley, Harry Robenstein, Chicago, Hiram E Ross Danville William H Maley, Galesburg, Robert D Luster, Granite City Harry B Roberts, Highland Park Winfield G McDeed, Monticello and Orvel A Suttle, Mount Vernon

To Fort Riley for instruction, Lieuts L D Applewhite and L G Harney East St Louis

To Washington, D C, for instruction, Lieut Walter J Sullivan Chicago

To home Capt J R Hollowbush, Rock Island

To Army Medical School Washington, D C, for instruction, Lieut. Frederick Arthur Blesse, Chicago

INDIANA

To Army Medical School Washington, D C, for instruction, Lieuts Chester A Stayton Arlie John Ullrich, Indianapolis, and Brown Shirl McClintic Peru

To Fort Benjamin Harrison for instruction, Lieuts Frank A King Garrett and Ulysses G Goodwin Monticello

To examine National Guard and then to Fort Benjamin Harrison for instruction Lieuts Henry W Gante, Anderson C W Ashley Bicknell Charles C Crampton, Delphi Joseph R Dillinger French Lick Daniel R Benninghof, Edgar N Mendenhall, Fort Wayne Clarence C Bassett Goodland Fred I Hosman Clifford H Mayfield Indianapolis Clarence E Barcus Logansport Hubert P Butts Pierceville David E Reed Russellville Ernest E Leeson, Sharpsville Arvine E Mozingo, Tipton

To Cornell Medical College, New York for instruction in military roentgenolgy, Capt James W Squire, Fort Wayne

IOWA

To Army Medical School Washington D C for instruction Lieut Ward Stanley Wells, Nashua

To Fort Riley for instruction, Lieuts B L. Gilfillan Keokuk E B Fulliam Jr, Muscatine E D McClean, Oskaloosa and J A Matson Purdy

To Fort Myer Va, for duty, Lieut S A O Brien Mason City

To Rockefeller Institute, New York for instruction in laboratory work Lieut Daniel J Glomset, Des Moines

KANSAS

To Fort Riley for instruction Lieuts E H Cist Beattie S A. McCool Neosho Falls, and W C Bundrant Partridge

To Fort Benjamin Harrison for instruction Lieut S H Martin Cambridge

To Fort Riley for instruction Lieut S Adams, National Military Home

KENTUCKY

To Army Medical School, Washington, D C, for instruction Lieut James White Bruce Louisville

To Fort Riley for instruction, Lieut C P Price, Harrodsburg

LOUISIANA

To Fort Oglethorpe for instruction Capt. Frederick T Brown, New Orleans

MAINE

To Fort Benjamin Harrison for instruction, Lieut H J Everett Portland.

MARYLAND

To Army Medical School Washington D C for instruction Lieuts Arthur Maynard Backon and Arthur Lee Hichew, Baltimore

To Fort Benjamin Harrison, Lieuts John F Byrne Baltimore and L G Taylor, Perryville.

To Provisional Ambulance Co B Camp Wilson, Fort Sam Houston, Lieut. Herbert L. Quickel Takoma Park

To Fort Oglethorpe for instruction, Capt. H C Knapp and Lieut. E E Mayer, Baltimore

MASSACHUSETTS

To Army Medical School Washington D C for instruction Lieuts Ross Golden James Blaine Montgomery and Norman Scott, Boston

To Boston for instruction in military roentgenology Lieut Arthur J Horrigan Springfield

To Eagle Pass Ambulance Co No 7, Lieut. Thomas P Jones Boston

To Fort Benjamin Harrison for instruction, Capts Frederick R Ilsley Medford J H Wyman Medway E B Bigelow Worcester Lieuts J K. Stoddard Boston E H Hughes, Holyoke Raoul G Provost New Bedford H. A Clark, North Andover and W E Denning and M Lincoln Worcester

To Motor Truck Group Fort Sam Houston, for duty, Lieut Abram L Van Meter Boston

To report to the commanding general N E Department, for duty Lieut Frank Piper Boston

MEXICO

To Army Medical School Washington D C., for instruction Lieu Otto Richard Brown Tampico Tamps

MICHIGAN

To Army Medical School Washington D C, for instruction, Lieut Robert Alexander Hale Ann Arbor

To Fort Benjamin Harrison for instruction, Lieut. Hugh W Dicken East Jordan

To examine National Guard and then to Fort Benjamin Harrison for instruction Major David B Downing Detroit Capt. Walter Robert T Sharpe, Romeo, Lieuts Milton A Darling, Ann Arbor, Edward J Agnelly, Lannes I Condit, Philip Isard Froude, George Hoffmeister, Eugene Smith, Jr, Detroit, Edward A Florentine, Ewen, George R Goering, Flint, Ansel B Smith, Grand Rapids, Albert V Braden, Ishpeming, Burns R Eastman, Muskegon, and Floyd W Lockwood, South Lyon

To Fort Riley for instruction, Lieut James L Walsh, Iron River

To Mount Clemens, Mich, flying school for duty as post surgeon, Lieut Alpheus F Jennings, Detroit

To Fort Benjamin Harrison for instruction, Capt O H Clark, Kalamazoo, and Lieut Harry C Miller, Hillsdale

MINNESOTA

To Army Medical School, Washington, D C, for instruction, Lieuts Edward Spender Murphy, Brainerd, and Cleon Joseph Gentzhow, Minneiska

To examine National Guard and then to Fort Benjamin Harrison for instruction, Lieut Richard R Cranmer, Minneapolis

To Fort Riley for instruction, Lieuts C F McCusker, Minneapolis, and F M Manson, Worthington

To Fort Riley for instruction, Capt J Butler, Minneapolis

MISSISSIPPI

To Army Medical School, Washington, D C, for instruction, Lieuts John Robin DeVelling, Laurel, and Egbert Hayes Wesson, New Albany

To Fort Oglethorpe for instruction, Capt B J Marshall, Agricultural College, and Lieut J L Parkes, Carthage

To Rockefeller Institute for Medical Research, New York, for instruction in laboratory work, Lieut R Richardson, Pheba

MISSOURI

To Army Medical School, Washington, D: C, for instruction, Lieuts Francis V Frazier, Alta Mont, Frank LaRue, Dexter, and Noble DuBois McCormack, St Louis.

To Fort Benjamin Harrison for instruction, Lieut J M Brown, Maysville

To examine National Guard and then to Fort Benjamin Harrison for instruction, Lieuts Curtis A Hunsaker, Kansas City, and Franz H Harms, St Louis

To Fort Riley for instruction, Capt R D Alexander, St Louis, Lieuts C A Abramopoules and H M La Rue, Kansas City, L F Toney, Piedmont, Albert S J Smith, St Joseph, T R Ayars, H L B [illegible] and S D Fox, St Louis

To report by telegraph to commanding general, S D Fort Sam Houston, for assignment, Capt Harold P Kuhn, Kansas City

To Washington, D C, for instruction, Lieut Montague M Meyers, St Louis

To Fort Riley for instruction, Lieut W H Hill, St Joseph

MONTANA

To Fort Riley for instruction, Lieut F W Loring, Whitehall

NEBRASKA

To Fort Riley for instruction, Capts H S Andrews, Mindon, S C Clements, Neligh, and Lieut Clifford L Hooper, Lewellen

To Fort Riley for instruction, Lieut C C Johnson, Creighton

NEVADA

To Fort Riley for instruction, Lieut D A Turner, Goldfield

NEW HAMPSHIRE

To Fort Benjamin Harrison for instruction, Lieut D R Chase, Lebanon

To Examine National Guard and then to Fort Benjamin Harrison for instruction, Lieut Robert O Blood, Concord

To Washington, D C, for instruction, Lieut Guy D Tibbetts, Bennington

NEW JERSEY

To Fort Benjamin Harrison for instruction, Capt L F Donohoe, Bayonne, Lieuts S E Weiner, Atlantic City, J G Coleman, Hamburg, L H Sparks, Lakewood, J B Winterseen, Moorestown G Blackburne, Newark, L M Suchoff, Paterson, S B Kaufmann and M H Leaver, Quakertown, F W Sell, Rahway, L Ely, Somerville, C J Slack, Trenton, and S Campbell, Woodbury

To Fort Oglethorpe for instruction, Lieut L C Russell, Newark

To Fort Benjamin Harrison for instruction, Lieuts S Stern, Atlantic City, and H G Smith, Cedar Grove

Relieved from further active duty, Capt William J Condon, New Brunswick

NEW YORK

To Army Medical School, Washington, D C, for instruction, Lieuts Roland Albert Davison, Brooklyn, John William McKeever, Newburgh, Cornelius A Denehy, Paul Barrus Johnson, Laurent Liscelles La Roche and Virginius Minervini, New York City

To examine National Guard ard then to Fort Benjamin Harrison for instruction, Lieuts Raymond C Hill, Bath, William Edward Skidmore, Brooklyn, John R Evers, Elmsford, and Henry W Jackson, New York

To Fort Benjamin Harrison for instruction, Major D A Sinclair, New York, Capts Arthur S Moore, Middletown, R H Halsey, H M James, C Philips, R M Taylor, New York, F A Hunt, Pompey J N Boyce, Stanfordville, D C Wiggin, Staten Island, Lieuts E D Gordon, J J Hauff, E L Hergert, F G Reed, A A Scouler and M I Strahl, Brooklyn, F M Neuendorf, Johnstown, L W Blake, A J Ellis, W Goldstein, G T Gracey, J Grosner, M G Herzfeld, D Kramer, J Leo, A Lustgarten, P J Manheims, B F Morowitz, L A Newfield, S V Rosenkranz, Alfred A Schwartz, R E Seibels, V C Von Unruh, M R Walter and M Warren, New York, L M Simonson, Pelham, T G Tousey, Rochester, and F J Herbig, Staten Island

To Fort Myer, Va, examining men on duty for tuberculosis, Lieut H C Drew

To Fort Oglethorpe for instruction, Lieut T R Barry, Ossining

To Rockefeller Institute, New York, for instruction in laboratory work, Lieut Russell LaF Cecil, New York

To Field Hospital Co No 7, Eagle Pass, Lieut Emanuel Kline, New York

To home, Lieut. Robert Malcolm, Yonkers

To Army Medical School, Washington, D C., for instruction, Lieut Richard Samuel Moynan, New York

To Fort Benjamin Harrison for instruction, Lieuts H Gross, C F Howland, H Katz, W G Noe and W H Sanford, New York.

OHIO

To Army Medical School, Washington, D C, for instruction, Lieuts. Stanley Gibson Odom and Raymond Albert Tomassene, Cincinnati

To Fort Benjamin Harrison for instruction, Lieuts I I Yodar, Cleveland, W H Henry, Hamden, and L Shields, Xenia

To examine National Guard and then to Fort Benjamin Harrison for instruction, Capt James B Dougherty, New Berlin, Lieuts. Homer G Scranton, Alliance, Merrick F McCarthy and Marcellus L. Peterson, Cincinnati, Albert J Brainard, Frederick S Cooper, David R Kline, William Frederick Rohland and Richard E Stifey, Cleveland, Sampel D Edelman and Walter H McKay, Columbus, William H Henry, Hamden, Robert C Rind, Springfield, James K Biddle, Steubenville, William A Deerhake, St Marys, James Alonzo Beljea, Toledo, and Delbert E Hoover, Warren

To Fort Benjamin Harrison, Lieut Charles H Bailey, East Liverpool

OKLAHOMA

To examine National Guard and then to Fort Benjamin Harrison for instruction, Lieut Edgar A Johnson, Hugo

To Fort Riley for instruction, Lieut. George Edward, Oklahoma City

OREGON

To Fort Riley for instruction, Capt P Rockey, Portland, Lieuts W T Gullion, Eugene, and P J Keizer, North Bend

PENNSYLVANIA

To Allentown, Lieuts T M Armstrong and Furman R Suits, Philadelphia

To Army Medical School, Washington, D C, for instruction, Lieuts Arhut Raymond Gaines, Altoona, Andrew Jackson Griest, Harrisburg Jay DeRue Mingos, Laquin, Henry Cheesman Dooling, Norwood Station Philip Jefferson Lukens, Jr, Philadelphia, Daniel Clyde Hankey, Paul Maxwell and Neuman Kyle, Pittsburgh, and Harold Dana Rogers, Westchester

To Cornell Medical College for instruction in military roentgenology, Capt Francis F Borzell, Philadelphia

To Fort Benjamin Harrison for instruction, Major J H Jopson, Philadelphia, Capts H J Repman, Charleroi, D J Donnelly, Philadelphia, Lieuts R McK Alexander, Bolivar, C S Abbott, Bristol, J L Junk, Connellsville, E F Corson, Cynwynd, F A. Rupp Lewistown, A L Hickok, Meshoppen, A V Carl, Numidia, S Jaffe, Norristown, E H Erney, J E Hume, F J Kelly and P A Trau, Philadelphia

To Fort Oglethorpe for instruction, Major William E Ashton, Philadelphia, Capt H Winsor, Haverford, Lieuts E R Plank, Carlisle, F D Thomas, Dorranceton, F T Romberger, Elizabethville J L Lenker, Harrisburg, C R Snyder, Maryville, W D Hunter, Monessen, J F M Snyder, New Kensington, W H McKeever, C E. G Shannon, H M Shannon, J Speese, C J Stamm, F A. Stiles and A C Strop, Philadelphia, D R Kunkelman, M Spiro and G W Van Gorder, Pittsburgh, J F Zychowicz, Scranton, and C K. Wagener, Swissvale

To Washington, D C, for instruction, Lieuts Harvey C Updegrove, Easton, Morris A Slocum, Etna, Edgar T Chatham, Pittsburgh, and William J McGregor, Wilkinsburg

To Fort Benjamin Harrison for instruction, Lieuts W E Grove, Johnstown, H Cooper, E R Sibley and Charles H Wells, Philadelphia

To Fort Oglethorpe for instruction, Lieuts J F Wagner, Bristol, and H Schmid, Pittsburgh

To Fort Riley for instruction, Lieut W F Howard, Pocatelle

PORTO RICO

To report in person to commanding general, Eastern Department, for assignment, Capt Emmett I Vaughn, Central Aguirre

RHODE ISLAND

To Fort Benjamin Harrison for instruction, Lieut Peter L Keough, Pawtucket

To examine National Guard and then to Fort Benjamin Harrison for instruction, Lieut Edward E Fitzpatrick, Woonsocket.

SOUTH CAROLINA

To Allentown, Pa, Lieut John R Boling, Columbia

To Army Medical School, Washington, D C, for instruction, Lieuts Albert Berchmans Pavy, Charleston, and Marion Rudolph Mobley, Florence

To Fort Benjamin Harrison for instruction, Lieut. G W Hill, Catawba

SOUTH DAKOTA

To Army Medical School, Washington, D C, for instruction, Lieut. Earle Douglass Quinnell, Sisseton

To Fort Riley for instruction, Lieut James C Walton, Isabel

TENNESSEE

To Army Medical School, Washington, D C, for instruction, Lieuts. James Walsh McClaran, Jackson, Paul Edgar McNabb and James

Monroe Trout Knoxville Henry Earl Fraser, Nashville Glenn Holway Peams Winchester, and Manton Leonard Shelby Woodlawn

To Fort Oglethorpe for instruction Lieut Edwin Dial Watkins, Memphis

To Fort Oglethorpe, S H Long Chattanooga.

TEXAS

To Army Medical School Washington D C for instruction, Lieuts Douglas Hamilton Mebane, Edmund Dumas Mills Robert Keith Simpson and Paul Henry Street Galveston William Love Starnes San Antonio James Winn Sherrill Temple, and Frank McAlphin Moose, Weatherford

To Sparta Wis, for temporary duty Capt Edward G Huber, Fort Bliss

VERMONT

To Fort Benjamin Harrison for instruction, Lieut A J Greenwood Springfield

VIRGINIA

To Army Medical School Washington, D C, for instruction Lieut Percy Elisha Duggins Norfolk

To Fort Oglethorpe training camp Lieut T A Rollings Lodi

To Richmond Va, for instruction in military roentgenology Lieut H S Stern Richmond

To Walter Reed Hospital Takoma Park, Lieut Charles V Carrington Richmond

WASHINGTON

To Fort Riley for instruction Lieut R S Stryker Ridgefield

So much of Par 8 S O 155 July 6 1917 War D as relates to Lieut F L Horsfall Seattle, revoked

Honorably discharged Lieut F L Horsfall Seattle

WEST VIRGINIA

To Fort Oglethorpe for instruction, Capt R H Powell Fairmont.

WISCONSIN

To examine National Guard and then to Fort Benjamin Harrison for instruction Lieut Edward W Hanson, Three Lakes

To Fort Riley for instruction Capt F W Vankirk, Janesville and Lieut. F R. Borden Plainfield

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Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest such as relate to society activities new hospitals education public health etc)

ILLINOIS

Personal.—Dr Eugen Cohn assistant superintendent of the Chicago State Hospital has been appointed superintendent of the Kankakee State Hospital, and will take charge of the Institution, August 15——Dr Cyrus H Anderson McLeansboro has been appointed superintendent of the Anna State Hospital, succeeding Dr Joseph A Campbell (resigned)——Dr Henry B Carriel, Jacksonville has been appointed state superintendent of the Dixon School and Colony for epileptics——Dr George A. Zeller, Peoria has been appointed superintendent of the Alton State Hospital——Dr S Victor Balderston Evanston, director of the Northwestern Ambulance Company, No 9, has been commissioned captain, M. O R. C U S Army

Chicago

Typhoid at State Hospital—July 16 four cases of suspected typhoid fever were reported at the Chicago Hospital for the Insane An investigation is under way

Personal—Dr Allen B Kanavel delivered a lecture before the City and County Medical Society, Portland, Ore., July 16 on 'Infections of the Hand.——Dr Hugh McGuigan recently lectured before the faculty and students of the Graduate Summer Quarter in Medicine of the University of Illinois on Blood-Sugar in Relation to Diabetes"

Increase in Sanitary Troops—Illinois Field Hospital Company No 4 commanded by Major James J McKinley, was mustered into the federal service, July 21, by Capt Edward G Huber, M C U S Army——Illinois Field Ambulance Company No 1 was mustered into service, July 22, by Lieut-Col Jacob Frank, chief surgeon, Ill. N G The company is under the command of Capt. George U Lipshulch

The Chicago Lying-In Hospital Opens New Building—The new building of the Chicago Lying-In Hospital was opened this week. The hospital will have 120 beds and will be 'open" i e., any reputable physician may treat patients in the hospital. It has ample facilities for teaching both in the amphitheater and at the bedside It is proposed to affiliate the institution with the Otho S A Sprague Memorial Institute for Medical Research so that the hospital may take an active part in the teaching of obstetrics

INDIANA

Trachoma Quarantine Threatened—Dr John H Hewitt, Terre Haute, a member of the state board of health, is reported to have asked the Vigo County Commissioners to condemn the town of Taylorville, and to order the 800 people who live there to move away because of the prevalence of trachoma In case the commissioners refuse to act, a permanent quarantine, it is said, will be ordered

Personal—Dr C Edward Harris, Bloomington, who was injured by the overturning of his automobile recently, is under treatment at the Methodist Hospital in Indianapolis——Dr Harry S Hatch has been appointed superintendent of the Sunnyside Sanatorium, established by Marion County for the treatment of patients suffering from tuberculosis——Dr Donald C. McClelland, La Fayette has been placed in command of Ambulance Company No 3, Ind N G——Dr Edson K Westhafer, New Castle has been commissioned captain, M C. Ind N G, and assigned to duty with the First Infantry——Dr Arett C. Arnatt, La Fayette, has been commissioned captain M C, Ind N G, and assigned to duty with the First Indiana Field Artillery——Capt Fletcher Gardner, Bloomington has been commissioned major, M C., Ind N G, succeeding Major George W Tuomey, New Albany (resigned)

KENTUCKY

Hospital Burns—The division hospital of the Illinois Central system at Paducah, was burned, July 10, causing a loss of $175 000 One patient and one nurse were injured The hospital will be rebuilt immediately

Fayette County Against Tuberculosis—Fayette County has initiated an energetic campaign against tuberculosis, and is working to secure $55 000 for a sanatorium Contracts have already been awarded for the equipment of a building which will be used pending the completion of the sanatorium

Kentucky Valley Physicians Meet.—The annual meeting of the Kentucky Valley Medical Association was held in Jackson, July 6 and 7 The society was entertained with a luncheon at the Trachoma Hospital, Jackson, by Surg John McMullen U S P H S Torrent was selected as the next place of meeting and the following officers were elected Dr Thomas C. Holloway, Hazard, president, Dr George F Doyle, Winchester, vice president, and Dr Luther Bach, Jackson secretary-treasurer

Personal—Dr Ralph DuCasse, city bacteriologist of Paducah, has resigned to accept an appointment as assistant on the dermatologic staff of the Cincinnati General Hospital——Dr Charles G Daugherty, Paris, was severely burned by an explosion of natural gas at his house——Dr Robert T Hocker, Arlington, has been made historian for life of the Southwestern Kentucky Medical Association——Dr Jesse M Moore, Princeton, has been appointed district surgeon of the Illinois Central system, succeeding Dr Joseph A H Miller, deceased

Health Board Loses Suit.—The court of appeals of Kentucky, in an opinion handed down by Judge Hart, reversed the decision of the lower court in the suit of Dr Louis Frank, Louisville, and Miss Margaret Hatfield, nurse, against the state board of health The lower court had held that Miss Hatfield could not administer an anesthetic without having first passed the examination before the state board of health and without possessing a certificate to practice medicine. The crux of the case was whether the administration of anesthetics constitutes the practice of medicine within the meaning of the Kentucky statutes regulating the practice of medicine The court held that giving the medicine prescribed by the physician in charge, who diagnosed the case and directed the time and manner and character of the medicine to be administered" is not practicing medicine. The board insisted that, in administering *anesthetics*, the person must exercise judgment in the amount given and must watch the condition of the patient to determine the effect of the anesthetic, and that this comes within the definition of practice of medicine. The higher court held that such a view would necessitate that every trained nurse should possess a license to practice medicine

LOUISIANA

License Revoked—An official communication states that, by judgment rendered by the courts of Louisiana on May 2, the license of Dr Eustus D Robbins of Baton Rouge was revoked, on conviction of felony

Personal—Dr Cosimo Noto, New Orleans, is at present serving with the Italian army on the Austrian frontier as a captain in a field hospital——Dr Thomas E Wright, Monroe has been appointed a member of the state board of medical examiners

Anthrax Investigation—The state board of health is making an investigation to determine whether a shaving brush, purchased from a New Orleans mail-order house, and supposed to be infected with anthrax bacilli, was responsible for the infection and death of a telegraph operator at Pass Christian, Miss

Physician Wins Suit—Dr Clarence Pierson, Jackson, superintendent of the State Insane Hospital, who sued the New Orleans *Times-Picayune* for $100,000 damages, on account of the publication of articles describing alleged conditions at the institution, was awarded a judgment of $7,500 and court costs, July 16, by the Civil District Court, New Orleans

MAINE

Personal—Dr Leverett D Bristol has been appointed state health commissioner of Maine——Dr Harrison J Hunt, Bangor, surgeon of the Crocker Land Expedition, arrived in New York, June 20——Majors Clarence F Kendall, Biddeford, John G Towne, Waterville, and Capt Delbert M Stewart, South Paris, have been appointed a board of officers for the examination of candidates to fill five vacancies for the grade of first lieutenant in the Maine Medical Corps

State Association Meeting—At the annual meeting of the Maine Medical Association, held in Portland, June 13 and 15, under the presidency of Dr Willis F Hart, Camden, a resolution was adopted favoring national prohibition during the continuance of the war The following officers were elected president, Dr James A Spalding, Portland, vice presidents, Drs George H Coombs, Waldoboro, and Delbert M Stewart, South Paris, and secretary-treasurer, Dr John B Thompson, Bangor (reelected)

MARYLAND

Inspection of Hospital Train—Maryland's first hospital train was sent to Washington, July 21, to be inspected by members of the Medical Corps of the Army and of the War College The train was completed under the direction of the Maryland Preparedness and Survey Commission, according to plans prepared by Dr Daniel Z Dunott chief surgeon of the Western Maryland Railroad, and with the cooperation of the Western Maryland, Baltimore and Ohio, and Pennsylvania railroads One car is fitted up as an operating room and the other cars as wards

To Study Soldiers' Needs—To prepare Baltimore to cope with social problems arising from the war and to cooperate with any federal movement of like nature, a public meeting was held, July 17, under the auspices of the Alliance of Social and Charitable Agencies An outline of relief work in Canada was presented by George L Jones, secretary of the Henry Watson Children's Aid Society of Baltimore A committee of five was named to formulate plans of mobilization for Baltimore In the absence of the president of the alliance, Dr J H Mason Knox, Jr, presided——Dr Archibald C Harrison Baltimore, has been appointed director of the Maryland University Base Hospital Unit.

MINNESOTA

Poliomyelitis Clinic—The free poliomyelitis clinic established in Minneapolis last month has cared for 112 patients A similar clinic opened in St Paul, July 9

Personal—Dr Francis G Blake has been appointed professor of medicine in the Minnesota Medical School of the University of Minnesota, and has begun work.

Ambulance Company Organizes—An ambulance company has been organized in St. Paul, to complete the quota of the state troops The officers assigned to this company are Drs Nels G Mortensen, Andrew Christiansen, Joseph L. Martineau and John Sibert of St. Paul, and Dr Harold W Stone of Wayzata

Hospital Items—The Sanford Drew Hospital, Farmington, was destroyed by fire, June 14 The patients were removed without casualty——St. Anne's Home for Aged People, Duluth, has been remodeled and converted into a hospital at a cost of about $30,000 The institution will accommodate 100 patients

Sanatorium Association Meeting—The second semiannual meeting of the Minnesota Sanatorium Association was held in St Paul, July 10 To meet a request from the War Department for twelve tuberculosis experts to assist the regular staff at Forts Snelling, Oglethorpe and Riley, the following committee was designated Drs Arthur T Laird, Duluth, George W Beach, State Sanatorium, and Ignatius J Murphy, St Paul

Assessments for Sanatorium Maintenance.—The board of commissioners of the Southwestern Minnesota Tuberculosis Association has passed resolutions levying a total of $25,000 against the counties of the district for the maintenance of the sanatorium during 1918 The following are the assessments Jackson County, $3,641 66, Pipestone County, $2,400.75, Rock County, $2,568 88, Nobles County, $3,833 35, Murray County, $2,954 60, Lincoln County, $2,481 40, Lyon County, $3,951 10, and Cottonwood County, $3,179 26

Higher Degrees in Medicine—The University of Minnesota has just granted higher degrees in clinical medicine to three physicians, as follows Dr Golder Louis McWhorter, doctor of philosophy (surgery), Dr Henry William F Woltmann, doctor of science (neurology), and Dr Hood Taylor, doctor of science (pediatrics) Degrees of master of science in surgery were granted to Drs Egerton Lafayette Crispin and Francis Bartholomew McMahon Also the degree of master of science in pathology was granted to Della Gay Drips and Dorothy Foster Pettibone.

MONTANA

State Health Officers Meeting—The annual meeting of the Montana State Health Officers Association was held in Kalispell, July 9 and 10, under the presidency of Dr Joseph C Denney, Clydepark The association adopted resolutions favoring selective draft. Dr Lawrence Stevens, Laurel, was elected president, and Dr Patrick H McCarthy, Butte, vice president

State Medical Society Meeting—The thirty-ninth annual meeting of the Montana State Medical Association was held in Kalispell, July 11 and 12, under the presidency of Dr John A Donovan, Butte One of the principal topics of discussion was "What Is the State of Montana Going to Do In Supplying Doctors for the Army?" Twelve members of the association answered this question by taking the examination for admission to the Medical Officers Reserve Corps of the Army A resolution was adopted calling on Congress to pass a selective conscription law for physicians The following officers were elected Dr Arthur Morrow, Kalispell, president, Harry B Farnsworth, Missoula, Willoughby G Dye, Great Falls, and Albert R. Varco, Miles City, vice presidents, Dr Elmer G Balsam, Billings, secretary-treasurer (reelected), Dr Rudolph Horsky, Helena, delegate to American Medical Association, and Dr George M. Crabb, Deer Lodge, alternate Butte was selected as the next place of meeting

NEW HAMPSHIRE

Personal—Dr Charles H Dolloff, assistant surgeon of the New Hampshire State Hospital, Concord, assumed his duties as superintendent, July 1, succeeding Dr Charles P Bancroft, whose resignation took effect on that date.——In the case of Mrs Margaret Winn, who sued Dr Julia A. Chase, Portsmouth, to recover $10,000 for alleged malpractice, the jury, June 25, returned a verdict in favor of Dr Chase

State Society Officers—At the one hundred and twenty sixth annual meeting of the New Hampshire Medical Society, held in Concord under the presidency of Dr Emdon Fritz, Manchester, the following officers were elected Dr Fred S Towle, Portsmouth, president, Dr Charles P Bancroft, Concord, vice president, Dr Dennis E Sullivan, Concord, secretary, Dr David M Currier, Newport, treasurer, and Drs Charles S Walker, Keene, Emery M Fitch, Claremont, Robert J Graves, Concord, Frank E Kittredge, Nashua, Abram W Mitchell, Epping, Forest L Keay, Rochester, Richard E Wilder, Whitefield, Frederick E. Clow, Wolfeboro, Alpha H Harriman, Laconia, and Frederic von Tobel, Lebanon, councilors The society adopted resolutions on the retirement of Dr Charles P Bancroft from the superintendency of the New Hampshire State Hospital, after thirty-five years of service, and also favored an immediate tuberculosis survey of the state The president appointed as a committee on the control of cancer Drs Frederick E Clow, Wolfeboro, Howard N Kingsford, Hanover, and John C. O'Connor, Manchester

NEW YORK

Personal—Dr Clifford R. Hervey Oswego of the state department of health has been appointed sanitary supervisor of the territory, including Jefferson St Lawrence and Franklin counties

College of Physicians and Surgeons Remodeled—The old building at the northwest corner of Fourth Avenue and Twenty-Third Street historic as the original home of the College of Physicians and Surgeons is being remodeled into a training school to receive war cripples and to educate and develop them The school is organized under the War Council of the American Red Cross and is temporarily under the direction of Dr Edward T Devine head of the New York School of Philanthropy It has been endowed by a donation of $50 000 and the use of the building by Mr Jeremiah Milbank

New York City

Personal—Dr Winthrop T Talbot Flushing has been appointed advisor in Alien Industrial Education to the New York State Bureau of Industries and Immigration

Low Death Rate for City—For the week ending July 14, the death rate for this city was the lowest yet recorded being 10 36 per thousand of population The death rate among babies under 1 year of age was 85 for each thousand births for the period since January 1, for last year it was 93

Demonstration War Hospital Now Ready—The demonstration war hospital on the grounds of the Rockefeller Institute at Sixty-Fourth Street and Avenue A is almost ready for service in instructing surgeons and nurses as to the advanced methods of surgery and caring for the wounded, in preparation for the work abroad

"Patent Medicine" Men Win Lawsuit.—The manufacturers of "patent medicines" have won an important decision over the department of health before the Appellate Division of the Supreme Court, which declares invalid the ordinance requiring the manufacturers of all patent medicines" to register all the ingredients of such remedies with the department of health. The court considered the ordinance unreasonable, since it had not been ratified by the state legislature.

Pier for Red Cross.—The dock commissioner has turned over to the American Red Cross the pier at Fifty-Seventh Street and North River for the exclusive use of the organization in the handling of supplies for the Army Two large buildings will be erected at the pier for the use of the society Supplies will be received and distributed through this station

Bellevue Hospital to Be Enlarged—The demands of the city as well as the needs that will arise from the war have made further hospital expansion necessary To meet these needs the board of estimate has arranged for the purchase of the block to the north of the present hospital grounds, on which an addition to the present Bellevue Hospital will be erected.

Infantile Paralysis—By the middle of July, 1916 1 900 cases of poliomyelitis had been reported to the department of health while thus far this year but seventy-seven cases have been reported Attention has been called by a number of writers to the fact that an increased prevalence of poliomyelitis is frequently associated with or followed by an increase in the prevalence of epidemic cerebrospinal meningitis The figures of the health department show that the amount of cerebrospinal meningitis occurring in this city at the present time is about normal

PENNSYLVANIA

Smallpox at Hazleton—Ten cases of smallpox are reported at Hazleton The patients are in the municipal hospital, and tents have been erected for convalescents

Society to Hear About War Surgery—The annual meeting of the Lehigh Valley Medical Society will be held in Buckwood Inn Shawnee-on-Delaware, July 31 The program has been arranged on war surgery

Personal.—Major Herbert Alonzo Arnold, M C., Pa. N G, Ardmore has been commissioned lieutenant-colonel——A commission as major has been given Dr Jonathan C Biddle, M C., Pa N G, Fountain Springs——Major Scott M Huff, Milesburg has been assigned to the First Cavalry succeeding Major Allen W Urmson Newcastle.——Dr Chapin Carpenter Pottsville, has been appointed a member of the staff of Base Hospital Unit No 34 Philadelphia

Philadelphia

Death from Yellow Fever—The Danish steamer *Bryssel* from Antilla, Cuba, for Philadelphia, was held at quarantine at Reedy Island, because of the death from yellow fever of a member of the crew No other case has occurred on the steamer

Money for Base Hospital—The Hahnemann Hospital and College campaign to raise $50,000 with which to equip its hospital unit has passed the half way mark The teams soliciting subscriptions or contributions reported, July 20, that $28,300 had been subscribed

Red Cross Nurse Dies—Miss Lydia D Shrope, former head nurse at 'the Philadelphia General Hospital, who has been active in Red Cross work in France since 1914, and who was connected with the base hospital at LaPanne, Belgium, died from tuberculosis at Fort Bayard, N M, recently

Two Thirds for Physicians in Military Service—The president of the Philadelphia County Medical Society writes that the statement made in The Journal, July 7, regarding the Philadelphia County Medical Society is incorrect The society will give two thirds of all money collected by its members from patients of members who are in the military service, retaining one third to cover expenses

Senior Physicians Elect Officers—Physicians of Philadelphia above the age of 55 years held a meeting in the College of Physicians and Surgeons of Philadelphia, June 27, and organized the Senior Medical Men for Special War Service The purposes of the organization were described by Drs Hobart A Hare, J Chalmers DaCosta, and others The following officers were elected president, Dr William W Keen, vice presidents, Drs John B Deaver and James M Anders, and secretary-treasurer, Dr Christian B Longenecker

Army Physical Examinations—The medical examinations of the National Guard mustered in the regular army showed a high standard of men In the first physical examination only one man was rejected and this rejection was provisional on the result of a Roentgen examination Those who passed the physical test included the line officers, the men of the battalion of the Sixth Infantry, the line officers and troops of the cavalry, and the officers and troopers of the E. A D and G The officers attribute the high standard of the men to the training they received on the Texas border last summer, and also to the fact that no one is accepted who does not meet the requirements of the physical examination prescribed by the Army

Base Hospital Unit Completed—The final list of those selected for Base Hospital No 20 of the University of Pennsylvania was announced by the examining board, July 20 The corps includes the commissioned personnel, regular nurses, nurses' aids and medical reserves The commissioned personnel includes

Majors J B Carnett, director E L. Eliason, chief of surgical section and G M Piersol, chief of medical section Capts J D Zulick chief of Roentgen ray and laboratory section D P Pfeiffer, surgeon D P Willard orthopedic surgeon B F Baer, Jr, ophthalmologist F E Keene surgeon J H Austin, physician J H Musser, Jr, physician F H Leavitt, neurologist and T Edwards, registrar, and First Lieuts S A. Brumm laryngologist A Randall, genito urinary surgeon E B Piper, surgeon W Bates, surgeon B M McIntire, physician E D Hopkinson, physician H Goldsmith, physician L L. Clemens physician P F Williams, pathologist A. C. Woods, bacteriologist J D Owens dental surgeon, and F P K Barker, dental surgeon

WASHINGTON

New State Society Officers—In addition to the list of officers of the Washington State Medical Society, appearing in The Journal, July 7, p 51 the following were elected president, Dr George M Horton, Seattle, secretary, Dr C H Thomson Seattle, and assistant secretary, Dr John H O'Shea, Spokane

Personal—Dr William D Kirkpatrick, Bellingham, has been appointed director of a Red Cross hospital unit, and expects to be sent to the Roumanian front.——Drs John R. Brown, Tacoma and Henry H McCarthy, Spokane, have been appointed members of the state board of health, succeeding Drs Elmer E. Heg, Seattle, and Wilson R. Johnston, Colfax, respectively

State Medical Aid Board—The state medical aid board is districting the state for the operation of the new law which provides for the payment of physicians' bills hospital fees and surgeons' expenses for injuries of workmen, and has issued a call for the election by workmen and employers of joint boards to handle the detail of aid extension Each board will consist of one workman and one employer, and will be selected by the contributors' fund, which the state administers of the professional staff consists of three majors, five captains, sixteen first lieutenants and a chaplain The other ranks number sixteen sergeants, mainly drawn from the regular army, and 200 of the medically enlisted reserve, comprising corporals, cooks and privates of the first class There are also sixty-four reserve nurses drawn from the great city hospitals of the United States As the hospitals taken over were in full working order there was no necessity for them to bring equipment, although most of the medical officers have come provided with their instruments They are unanimous in praise of the establishments handed over to them

PARIS LETTER

Paris, July 5, 1917

Personal

In the meeting held, June 19, the Academie de medecine proceeded to elect two foreign associate members On the first secret ballot Dr Soca, professor at the University of Montevideo, former president of the republic of Uruguay, was chosen by thirty-seven votes as against eleven for Professor Roux of Lausanne On the second ballot Dr Couto, professor of internal medicine at the Faculte de Rio-de-Janeiro, the former president of the Academy of Medicine of Brazil, was chosen by thirty-two votes as against eighteen for Professor Roux

The administrative council of the Pasteur Institute of Paris met recently to name two new subdirectors in place of M Chamberland, who died in 1908, and of Prof Elie Metchnikoff, who died in 1916 On motion of Dr Roux, director of the Pasteur Institute, the council unanimously appointed as subdirectors of the institute Dr Albert Calmette, director of the Pasteur Institute of Lille, and Dr Louis Martin, director of the Pasteur Hospital.

Sale of Alcoholic Beverages

The prefect of police of the department of the Seine has just signed a decree in accordance with which the sale at retail of alcoholic beverages to be consumed on the premises is prohibited in all cafes, restaurants or other drinking places wheresoever located, except within the hours corresponding to the two principal meals, which are fixed as follows, on the basis of two hours for each meal from 12 noon to 2 p m, and from 7 to 9 p m So far as women and minors under 18 years of age are concerned, the prohibition will be applicable during the whole time that such establishments are open All liquor venders are prohibited from selling at retail alcoholic beverages to take along, of whatsoever nature, in quantities of less than 2 quarts of any given kind The prohibition outlined above does not apply to (1) wine, beer, cider, perry (pear cider) and hydromel, (2) liqueurs and artificial wines, as well as aromatic wines prepared without maceration with or distillation from substances containing essences or essential oils, provided they do not assay more than 18 per cent, (3) sweetened liqueurs prepared from fresh fruits, provided they do not assay more than 23 per cent Violators of this decree will be rigorously prosecuted in conformity with the law

Ether Anesthesia

At one of the recent meetings of the Academie de medecine, Dr Meriel, professor of the surgical clinic at the Faculte de medecine de Toulouse, presented a communication on this subject The main point that he claimed to establish was that the pulmonary complications frequently brought on by ether anesthesia are avoidable if a careful technic is employed during and after anesthesia Julliard had already published statistics on nearly 10,000 etherizations without untoward effects of this kind Meriel declared that since 1909 out of 4,880 etherizations he had not noted a single grave complication, only occasionally in winter there had been a few benign cases of trachitis, which only rarely degenerated into bronchitis As the result of long experience, Meriel was able to state that, if certain precautions are taken, ether anesthesia is not only easy to accomplish, but is also without any real danger, and is contraindicated only in the case of emphysematous and tuberculous patients, and can be employed even in operations about the face and neck

Filiform Drainage

A report on filiform drainage was recently handed in by Dr Mercade to the Societe de chirurgie de Paris All ten patients to whom he had occasion to apply this drainage recovered rapidly and without cicatrices His observations may be classified thus three acute abscesses of the neck, cured in eight or ten days, three cases of tuberculous, suppurative adenitis, cured one in eight days, the second in twenty, and the third in thirty days, one hematoma of the leg, cured in twenty days, one fistula, supported by a drain, cured in nine days, and two abscesses, developed in the course of a suppurative arthritis of the knee, cured in ten days Following these observations, Mercade presented some general statements on the filiform drain, on the good results from the use of which I have already commented (The Journal, May 5, 1917, p 1335) According to Mercade, this method effects a continuous drainage of an abscess without the introduction of a voluminous foreign body and without a large incision The natural curative process is consequently not interrupted, and when the flow of pus has stopped, the walls of the abscess unite in a few days without a scar, whereas the large incision made in connection with tubular drainage lengthens the time required for healing, and leaves conspicuous scars The filiform drain acts, as it were, as a permanent evacuatory puncture It allows the pus to escape and prevents the air and the dirt from entering, in short, it works like an ordinary check valve On the other hand, the tubular drain evacuates poorly the thick pus It lets air in, and it works like a check valve reversed The evacuation of pus without air being permitted to penetrate into the pocket is of great importance, especially in the case of abscesses which an incision causes to become fistulous, whereas the evacuatory puncture, if properly done, generally cures them without fistulization The principal advantages of filiform drainage, according to Mercade, are the avoidance of the necessity of anesthesia, the simplicity and the rapidity with which the operative procedure is accomplished, the rapidity of the healing process and the absence of cicatrices

In support of this communication, Dr Chaput, surgeon of the Hopitaux de Paris, declared that for several years past he had definitely renounced tubular drainage, that he had employed filiform drainage exclusively, and that this form of drainage had always given him results much superior to the results obtained from tubular drainage.

The War

THE AMERICAN RED CROSS

A generous American has just placed at the free disposal of the American Red Cross the old Coislin palace, situated in Paris, at the corner of la place de la Concorde and la rue Royale, to serve as general headquarters The commission will be installed here as soon as the apartments can be made adaptable to their new use, and the work that has been undertaken with this end in view will be pushed as fast as possible The Commission of the American Red Cross owes it to the generosity of its friends that it is able to meet with its own funds all obligations imposed on it It is now financially so situated that whatever money is raised in the United States by the collections during "Red Cross Week" and by the subscriptions and gifts which the commission may receive during the course of the war, it will be in a position to use entirely for the alleviation of suffering Acting in harmony with the general headquarters of the American Army, it will provide the best of care and the highest degree of comfort possible for the troops that the United States shall send to France

AMERICANS ENROLLED IN THE LEGION OF HONOR

On the occasion of the celebration of American independence, the president of the republic, adopting the proposal of the president of the Council and the minister of foreign affairs, bestowed the cross of the Legion of Honor on several Americans of note, namely To Mr Whitney Warren, associate member of l'Academie française, and member of the American Relief Clearing House, was given the rank of "officer," and to Mr Pratt, director of the American Relief Clearing House, and to Mr Fitch, chief surgeon of the Franco-American Hospital of Saint-Valery-en-Caux, was accorded the title of "knight"

REINJECTIONS OF ANTITETANIC SERUM BEFORE OPERATIONS

At two recent meetings, the Societe de chirurgie de Paris discussed at length the question of giving reinjections of antitetanic serum to the war wounded before undergoing surgical operations This discussion was taken up in connection with the communication from *Dr Silhol of Marseilles* Silhol has given in his service reinjections of antitetanic serum to eighty-five patients All received, between 9 and

11 a m, a first injection of 1 c c of the serum, and if there was no reaction a second injection of 10 c c was given between 2 and 4 p m Out of these eighty-five patients, nineteen developed more or less serious symptoms (itching, nausea, vomiting weak pulse, headache, syncope etc) Silhol concludes from this that it would appear advisable not to attempt to treat patients indiscriminately with antitetanic serum at times of surgical intervention and application of dressings unless good and sufficient reasons exist which will compensate for the inconvenience and dangers of the antitetanic serotherapy, and that no one should consider himself either culpable or blamable if a case of tetanus occurs, after an operation important or otherwise on a patient who was not reinjected

Dr Riche a surgeon of the hospitals of Paris has called attention to the fact that the problem of the preventive efficacy of antitetanic serum has not been scientifically demonstrated There are believers disbelievers and skeptics He places himself in the ranks of the skeptics, for, to his notion, the inefficacy has not been proved either

Dr Proust expressed profound surprise to hear Silhol still raise doubts as to the efficacy of the serum and to note that Riche stated that its efficacy had not been scientifically demonstrated Proust thinks it has been—at least empirically All those who were witnesses of the frightfully numerous cases of tetanus at the beginning of the war, and who now view its almost complete disappearance, will likely proclaim their absolute faith in the serum As regards secondary infections after what he has seen as head of a surgical section Proust believes he can safely say that when it is a question of the secondary removal of projectiles from an infected area the reinjection of antitetanic serum is indicated It is it seems to him practically a question of good judgment, since inoculation accompanied by reactivation is evidently almost always fatal The importance of the result to be obtained must be regarded as greater than the inconvenience imposed by the at times unfavorable effects of the serum

Dr Delbet has observed two cases of tetanus resulting after the injection of antitetanic serum One of these patients had received only one injection, the other had received two The tetanus appeared several weeks after the injections In both cases there were singular manifestations which one is not in the habit of observing in man and to which Lumiere has already called attention the muscles with bulbar innervation were only slightly and that tardily affected The contractions began in the member which was the seat of injury and remained confined to this member for a long time, as if the toxin had mounted along the nerve fibers without extending throughout the whole system Both patients recovered after receiving daily from 30 to 40 c c of antitetanic serum and from 1 to 1 2 gm of phenol The impression made on Delbet by these two cases is that the injections of antitetanic serum although they were of old origin modified the progress of the tetanus Evidently these patients were no longer sufficiently immunized as is shown by the fact that they had tetanic symptoms, but it seems probable that they had preserved a partial immunity which modified the progress of the tetanus As for the unfavorable symptoms resulting from antitetanic serum they must not cause the abandonment of serotherapy, although the after-effects are certainly troublesome at times, and it would be desirable to be able to avoid them or at least to lessen the chance of their occurrence, this, perhaps, will prove to be possible

Dr Fredet surgeon of the hospitals of Paris thinks that in order to solve this question it is indispensable to ascertain (1) how frequent and how serious these cases of tetanus are which spring up in belated fashion, in spite of injection or a series of injections of antitetanic serum (2) how frequent and how serious the after-effects resulting from reinjections of serum are As for the first point Fredet states that out of more than 1 000 surgical operations which he performed on the war wounded after the lapse of considerable space of time since the first and only antitetanic injection, or since the series of injections he had observed only one case of tetanus, and the progress of even this case was benign On the other hand, since October, 1916, Fredet has subjected about fifty patients to reinjections before operating on them He has not, however, observed any unfavorable results not even Arthus' phenomenon, but he remembers a case of hypersusceptibility which he saw before the war The patient was a young girl who had receiv d two years previously, an injection of antidiphtheritic serum and who, after being subjected to a new injection of antitetanic serum by reason of a foot injury, showed anaphylactic symptoms of a rather serious nature

Dr L Bazy, chief of the surgical clinic of the Faculte de medecine de Paris lost recently one of his patients, who succumbed to tetanus in spite of three prophylactic injections, but he does not consider this fact an argument against the efficacy of antitetanic serum The most evident cause of the effects of antitetanic serotherapy in checking the disease is the persistence of the tetanic focus The above-mentioned patient had, besides war wounds serious frost bites on both feet and bacteriologic tests showed that the tetanic focus was localized on the surface of the frost bite on the left foot, from which the dead tissue was just beginning to slough off at the time the first symptoms of tetanus appeared It is probable that the quantity of tetanus toxin secreted on the surface of this wound was considerably out of proportion to the doses of serum injected, and here, according to Lumiere, is the principal cause of the examples of precocious tetanus (if they may be so termed) as the result of antitetanic injections Another reason which would explain the prophylactic effects of serotherapy in general and of antitetanic serotherapy in particular, is that the serum used is horse serum, and therefore a heterogenous serum, consequently, the protection which it confers on man is of infinitely shorter duration than the protection it gives to a horse, for the simple reason that its introduction into the human system has the effect of bringing about immediately the production of an antibody (horse antialbumin) the efficacy of which increases in proportion as the injections are renewed Since the immunity conferred by the prophylactic injection is easily exhausted it becomes possible to understand the delayed appearance of tetanus long after injections of antitetanic serum have been given, and also why it appears at the very moment when tetanic inoculation occurs on the surface of wounds of more or less old origin scarred over or otherwise, as the result of surgical intervention or some traumatism which liberates the spores confined in the encysted foreign bodies

Dr Thiery notes the fact that the clash between the theory of insufficiency of the antitetanic serum as against too strong doses of toxin elaborated at the focus of infection, and the belief in the insufficient duration of the immunization due to the heterogenous nature of the serum with which we are dealing gives rise to two modes of practice as applied by the supporters of antitetanic serotherapy while Lumiere asserts that the doses of serum should be increased considerably so as to give in two or three days up to *from 190 to 200* c c and even more Bazy thinks that, on the contrary, we can reduce the dosage more and more until we *need* inject only from 2 to 4 c c On the other hand in order to be logical, knowing that the serum acts only on the circulating toxin and has no effect on the germs elaborating this toxin unceasingly at the focus of infection, why do these supporters of serotherapy not recommend the suppression of these germs by amputation of the member, an old mode of practice which at present seems to have fallen completely into disuse?

Dr Potherat surgeon of the hospitals of Paris, declares himself to be an ardent believer in antitetanic serotherapy, but that does not signify that he has a blind faith in it There are cases indeed, in which the serum appears to be entirely inefficacious But independent of whatever particular influence the fact that the serum is horse serum may have, is not the same thing happening here which happens in the case of antidiphtheritic serum? All powerful though the latter may be against pure diphtheritic pharyngitis or laryngitis, it is inefficacious against angina due, for example, to a streptococcus In war surgery, when there are so many different micro-organisms invading the wounds and when conditions manifestly favor the development of the *Bacillus tetani* may there not be some which would be an obstacle to the action instituted by the antitetanic serum? Potherat emphasizes the fact that the surgical intervention has an evident, even preponderant, tendency to bring about the manifestation of tetanus Its appearance, even though delayed, in cases of persistence of foreign bodies, and its cure, by even the secondary removal of such foreign bodies, furnish a proof of this From this we may conclude that when giving prophylactic injections and reinjections to patients, we must act subsequently as if we put no reliance in this medication, and must treat the wounds as soon as possible by the incision of recesses, the excision of dead tissue and the extraction of foreign bodies, in short, the bringing to bear of all means possible to rid the infected focus of the *Bacilli tetani*

Marriages

Wilbur H Minford, M D, Hazleton, Pa, and King George Military Hospital, London, England, to Miss Mildred Brightmore, in London, England, June 2

Lieut William Amory Taylor, M O R C, U S Army, Portage, Wis, to Miss Zelia Cooper of Terre Haute, Ind, at Wheaton, Ill, May 27, 1916

Lieut Leroy Dilmore Soper, M O R C, U S Army, Smyrna, N Y, to Miss Valentine Evelyn Johnson, of Burlington, Vt, June 20

Vernon Walker Le Master, M D, Sidney, Ohio, to Miss Helene Garmhousen of Lock Two, Ohio, at New Bremen, Ohio, recently

Lieut Dexter Hathaway Witte, M O R. C, U S Army, Hartford, Wis, to Miss Margaret Hablegger of Watertown, Wis, July 7

Lieut John Stephen McAtee, M O R. C, U S Army, Councils Bluffs, Iowa to Miss Marie Callahan of Omaha, July 10

Lieut Henry Stanley Rogers, M C, Kan N G, Topeka, to Miss Jean Frances De Hart of Bartlesville, Okla, July 9

Capt Robert Skelton, M C, U S Army, Douglas Ariz., to Miss Evangeline Bovard of Nogales, Ariz., July 12

Anthony Bassler, M D, New York, to Miss Harriet M. Seeley of Renfrew, Conn, in Kingston, Ont, July 14

Charles Wadhams Stevens, M D, New York, to Miss Marion Duncan Paine, at Scarsdale, N Y, June 30

Lieut George McLean, M O R C, U S Army, to Miss Margaret A Gunther, both of Baltimore, July 7

Fred Xenophon Lilly, M D Dawson, W Va., to Miss Anna Helen Young of Hinton, W Va, July 6

Gordon Wood Higginbotham, M D, to Miss Faye Adams, both of Liberal, Kan, at Hooker, Okla, July 5

James Francis Brady, M D., Boston, to Miss Ethel Gertrude Costello of Cambridge, Mass, June 26

Jarrett Jeffery Billington, M D, to Miss Cecile Harriet Nott, both of Enterprise, Okla, July 10

Capt Elbert Clark, M O R C, U S Army, to Miss Helen Johnson, both of Chicago, July 11

Louis Albert Packard, M D, Hibbing Minn, to Miss Mildred Mandeville of Denver, June 19

Jacob Frank Friesen, M D, Los Angeles, to Miss Florence Adora Huntingdon of St Paul, recently

Deaths

George Edward Walton, M D, Daytona, Fla, Bellevue Hospital Medical College, 1864, aged 77, assistant surgeon in the Army during the Civil War, lecturer on physiology in the Medical College of Ohio, Cincinnati, 1867, lecturer on materia medica in Miami Medical College, Cincinnati, in 1868, professor of principles and practice of medicine in the Cincinnati College of Medicine and Surgery, in 1869, president of the Cincinnati Academy of Medicine, in 1880, and president of the Volusia County Medical Society, in 1904, died at the home of his son, in Terre Haute, Ind, June 26

Henry H Doan, M D, Philadelphia, University of Pennsylvania, Philadelphia, 1890, aged 49, a member of the Medical Society of the State of Pennsylvania and of the Association of Military Surgeons of the United States, Major, Medical Corps, N G, Pa, assistant medical inspector of the Philadelphia Bureau of Health from 1904 to 1915, and thereafter chief of the division of child hygiene and chief of the division of hygiene, died at his home, July 5, from nephritis

James Walton Wood, M D, Long Beach, Calif, College of Physicians and Surgeons, Chicago, 1883, aged 61, formerly a Fellow of the American Medical Association, health officer of Long Beach from 1887 to 1898, a member of the local school board for nine years, director of the National Bank of Long Beach, and local surgeon of the Southern Pacific, Salt Lake and Pacific Electric railways, died at his home, July 5

William Stone Woods, M D, Kansas City, Mo, Jefferson Medical College, 1864, aged 76, a practitioner of Middle Grove, Mo, from 1863 to 1867, and thereafter a merchant and later a banker, president of the National Bank of Commerce, Kansas City, one of the most successful and prominent business men and bankers of Kansas City, died in Excelsior Springs, Mo, July 5, from cerebral hemorrhage

Francis M Ridley, M D, La Grange, Ga, Tulane University, New Orleans, 1880, aged 59, a member and once president of the Medical Association of Georgia, president of the state board of medical examiners, once president of the Troup County Medical Society, chief surgeon of the Atlanta and West Point, and Macon and Birmingham railroads, died at his home, July 7

Louis G Armendt, M D, Owensboro, Ky, University of Louisville, Ky, 1886, aged 66, a member of the Kentucky State Medical Association, a member of the staff of the Owensboro Hospital, health officer of Daviess County, and a member of the Daviess County Draft Exemption Board, died at his home, July 8, from cerebral hemorrhage.

Lycurgus S Null, M D., New Haven, Ind, Eclectic Medical Institute, Cincinnati, 1866, aged 77, formerly a member of the Indiana State Medical Association, a veteran of the Civil War, in 1880 a member of the state legislature, and two years later elected state senator for four years, died at his home, July 8, from organic heart disease

Leonidas Strickland Ebright, M D, Sharon Center, Ohio, Wooster (Ohio) Medical College, 1869, aged 72, a veteran of the Civil War, formerly a member of the Ohio State Medical Association, a member of the legislature from 1880 to 1882, died at his home, June 10, from cerebral hemorrhage.

William Keating Bauduy, M D, Little Rock, Ark., Missouri Medical College, St Louis, 1886, aged 51, formerly a member of the Arkansas Medical Society, emeritus professor of psychologic medicine and diseases of the nervous system in Washington University, St Louis, died at his home, July 1

James Ambrose Jones, M D., Lynn, Mass, University of Vermont, Burlington, 1906, aged 52, formerly a Fellow of the American Medical Association, a member of the Massachusetts Medical Society, for ten years assistant city physician of Lynn, died at his home, July 3, from heart disease

William Schmoeller, Houston, Texas, Memphis (Tenn) Hospital Medical College, 1893, aged 61, formerly a Fellow of the American Medical Association, a member of the State Medical Association of Texas, a member of the sanitary corps during the Turko-Russion War, died at his home, July 6

Wilbur Alden Hunt, M D, Kettlersville, Ohio, University of Cincinnati, 1912, aged 29, died at his home in Kennedy Heights, Cincinnati, July 8, from rheumatism, resulting from exposure while on duty as a sergeant, Hospitals Corps, Ohio N G, during the floods in Hamilton in 1913

Joseph Miller Kells, M D, Columbus, Ohio, Medical College of Ohio, Cincinnati, 1880, aged 59, in charge of the relief department of the Pennsylvania system, Columbus district, since 1893, died at his home, July 1, from pernicious anemia

Charles Bush James, M D, Denver, Kentucky School of Medicine, Louisville, 1891, aged 51, city physician and police surgeon of Denver, for ten years physician of Denver County, died in St. Luke's Hospital, Denver, July 9, from asthma

Ulysses G Senour, M D., Cincinnati, University of Louisville, Ky, 1889, aged 52, formerly a district physician of the Cincinnati Health Department, and mayor of Pleasant Ridge, died at his home, July 7, from cerebral hemorrhage

Edwin D Farrow, M D, Visalia, Calif, University of Pennsylvania, Philadelphia, 1864, a member of the Medical Society of the State of California, for many years physician of Tulare County, died at his home, July 6

Christopher Turner, M D, Butte, Mont., National University of Ireland, Dublin, 1897, aged 56, formerly a Fellow of the American Medical Association, surgeon to St James' Hospital, Butte, died in Brooklyn, June 23

Edgar Jehial Meacham, M D, Richmond Beach, Wash., Rush Medical College, 1879, for the last year physician on the steamer *Protesilaus*, in the British service, died in the Providence Hospital, Seattle, June 28

Samuel D Tobey, M D., Council Bluffs, Iowa, University of Michigan, Ann Arbor, 1860, aged 80, a veteran of the Civil War, formerly a member of the Iowa State Medical Society, died at his home, July 8

Homer F Fort, M D, Dickens, Neb, Omaha Medical College, 1888, aged 61, for several years local surgeon for the Union Pacific System, died in a hospital in Omaha, about June 30, from arteriosclerosis

Isaac F Sweeney, M D., Milton Ind , Medical College of Ohio Cincinnati 1866 aged 72, a member of the Indiana State Medical Association, a veteran of the Civil War, died at his home, about June 29

Warren Joseph O'Hara, M D , Hastings Neb , Rush Medical College 1891 aged 50, a Fellow of the American Medical Association, died in St Catherine's Hospital, Omaha, July 3, after an operation

Louis Baumann, M D., Jersey City N J , New York University, New York, 1884 aged 54 a member of the Medical Society of the State of New Jersey died at his home July 10 from heart disease

John Wesley Saucerman, M D , Winslow Ill , Rush Medical College 1863 aged 79 formerly a member of the Illinois State Medical Society , died at his home July 2, from cerebral hemorrhage

Francis W Johnson, M D , Utica Ind Kentucky University Louisville 1904 aged 47, a member of the Indiana State Medical Association, died at his home July 3 from heart disease.

George Henry McKeehan, M D., Washington D C Washington (D C.) Homeopathic Medical College 1896, for many years a manufacturing pharmacist, died at his home July 3

Alison B Bush, M D., Weston W Va , College of Physicians and Surgeons Baltimore 1893 aged 51 a Fellow of the American Medical Association, died at his home June 30

George W Veach, M D , Wilmette Ill , Western Reserve University Cleveland, aged 93, for more than forty years a practitioner of New Castle Pa , died at his home, June 2

William Harrison, M D , Port Angeles Wash College of Physicians and Surgeons in the City of New York, 1850, aged 97, died at his home May 11 from senile debility

John South Drake, M D., Santa Fe Mo , Miami Medical College Cincinnati 1871, aged 76, a Confederate veteran, died at his home, July 10 from cerebral hemorrhage

James A. Thomas, M D , Owensville Ind , Louisville (Ky) Medical College, 1884, aged 55 a Fellow of the American Medical Association, died at his home, July 2.

Michael Arthur Young, M D , Indianapolis, Medical College of Indiana Indianapolis 1891 aged 58, was struck and killed by an interurban car in Indianapolis July 10

Edgar T Cook, M D., Hot Springs, Ark , University of Louisville, Ky 1884, aged 64, died in his office in Hot Springs, July 11, from cerebral hemorrhage.

Stephen Arthur Allen, M D , Plymouth Mass , New York University New York, 1879, for many years a practitioner of New Bedford, died at his home June 22

James P McMillan, Medora, Ind (license Indiana 1897), aged 74, for many years a practitioner and druggist of Jackson County , died at his home July 7

Robert S McCray, M D., Morristown Ind , Medical College of Indiana, Indianapolis 1884, aged 59, died at his home, July 7 from kidney disease

John J Kane, M D., St Louis, Homeopathic Medical College of Missouri St. Louis 1871, aged 71, died at his home, July 3 from acute uremia

W L Marshall, Longview Texas (license years of practice Texas 1907), aged 89, a Confederate veteran, died at his home June 23

Abram Milton Powers, M D , Rootstown, Ohio, Eclectic Medical Institute, Cincinnati, 1869, aged 80, died at his home, June 23

Edward M Manning, M.D., St. Joseph, Mo , Northwestern Medical College, St. Joseph Mo, 1882, aged 78, died at his home, June 24

George B Moore, M D , Strawtown Ind , Medical College of Indiana, Indianapolis, 1870, aged 75, died at his home, June 28

Frank G Jones, M D., Cleveland, Homeopathic Hospital College, Cleveland 1888, aged 50, died at his home June 22

Duncan McKellar, M D., Hillsdale Mich , University of Michigan Ann Arbor 1876, aged 65, died at his home July 7

William L Busby, M D., Delta Iowa, Bennett Medical College, Chicago 1888, aged 58, died at his home, July 7

Daniel W Humfreville, M D , Los Angeles, Medical College of Ohio 1864, aged 74, died at his home, June 23

William B Ezell, M D , Ezell Va , Atlanta, Ga., Medical College, 1861, aged 80, died at his home, June 29

Correspondence

END MONOPOLY ON SALVARSAN

[Last week we commented on the fact that the Adamson bill had passed the House of Representatives and would, quite likely, soon pass the Senate, that it included a clause authorizing the Federal Trade Commission to grant licenses to citizens of this country to manufacture products controlled through patents, by enemy aliens Bearing on this subject is a letter to the Chairman of the Federal Trade Commission, which is of such importance, in that it states concisely certain facts that we gladly give space to it —Ed]

New York, July 19, 1917

Hon William J Harris
Chairman Federal Trade Commission,
Washington, D C

Sir —In view of the possibility of the enactment of the Adamson bill, providing for the licensing of foreign patents to American citizens I beg to present a few considerations bearing on the subject of salvarsan As a former president of the American Dermatological Association, a member of the Executive Council of the American Society for the Control of Syphilis, and one moreover whose life has been spent in the treatment of this disease, I venture to express the belief that I speak with a certain authority

I need not dwell on the enormous prevalence of syphilis among all classes of the community or on the inestimable value of salvarsan in its treatment Nor need I refer to the great increase in this already prevalent disease that, according to universal experience may be expected among the soldiers of the great army whom we are about to enroll The use of salvarsan has today become a vital necessity

When it comes to the question of licensing this or that individual or corporation to manufacture this drug, it is important to bear in mind the fact that we are not dealing with wagon-wheels or tomato cans The ordinary dose of salvarsan contains enough arsenic to kill several people, and in its manufacture several arsenical compounds of extraordinary toxicity are likely to be produced and must be guarded against or eliminated In short, salvarsan, improperly made, may be a poison of tremendous virulence It seems obvious, therefore, that the licensing of the manufacture of this drug should be granted only under the strictest precautions, under such security that the possibility of killing our patients with it is excluded The individual practitioner cannot make the necessary tests I venture to suggest that no salvarsan be permitted to be sold that does not bear the imprimatur of some such authority as the Public Health Service of the government

Your commission is of course, aware of the fact that for some time past the Dermatological Research Laboratories of Philadelphia have manufactured salvarsan and have rendered the country a service of incomparable value in supplying the drug at a time when the foreign supply was unobtainable The Philadelphia salvarsan has commended itself to the profession who have learned to value its therapeutic efficacy and its freedom from poisonous by-products In point of fact, in regard to its freedom from poisonous admixtures, it has shown itself to be superior to the imported drug It would be a distinct loss to the public if this laboratory were deprived of the right to continue to supply the drug, the more as the laboratory in question has notoriously not engaged in the manufacture of the drug from motives of gain, but mainly from the altruistic desire to conserve the use of this valuable drug for the American public

The foreign owners of the patent rights and their agents in this country, on the other hand have exploited the drug to the utmost they have made the public 'pay all the traffic would bear" There is an ethical side to this question which cannot be ignored in the midst of its legal and commercial aspects The experimental work which resulted in the elaboration of salvarsan was done in the Speyer Haus of Frankfort—a scientific foundation established by a philanthropist of Frankfort for the benefit of humanity, very much like the Rockefeller Institute for Medical Research in the city of New York, though on a much smaller scale Conceive for a moment the possibility of a discovery like salvarsan having been made in the Rockefeller Institute and then patented by Dr Flexner and the profits of its sale devoted to private ends! But more, sir! Not only has this drug, discovered in a laboratory founded for the benefit of humanity, been used for private gain, but the gains which the patentees had made have been exorbitant and outrageous They have abused their monopoly, they have exacted blood-money from the poor for a product which on ethical grounds should belong to the poor without profit to the patentees For a drug whose sole cost practically depends on the overhead charges of the laboratory and factory, into whose manufacture the chemicals that enter cost normally only a few dollars per pound, they have charged the public at the rate of more than $3,000 per pound!

It would be a calamity to grant to this same group of people, who have so shamelessly abused their legal privileges, the sole right to manufacture the drug Since the war, under the plea of increased expenses for freight, etc, they have audaciously added over $700 per pound to the already high cost of the drug The public has no assurance that, with their monopoly secured, this rapacious group will not even still further add to the burden which the sick poor has to bear

Let the manufacture of salvarsan be thrown to any one competent to make it and let only that product be sold which passes the tests of a recognized authority In this way, the price of this inestimable drug will be kept within reason and its therapeutic reliability assured

A patent on this drug should never have been asked for, nor granted if asked It is interesting to recall the fact that two of the greatest life-saving discoveries in the history of civilization, Jenner's vaccination against smallpox and Sir Humphry Davy's safety lamp for miners, were given to the world without thought of profit to the discoverers On the other hand, von Behring, a German idealist who despises the "Dollar Amerikaner" patented his diphtheria antitoxin in Germany and was prevented from patenting it in this country only because Roux, a Frenchman, who had simultaneously worked out the same product, had given it freely to humanity before von Behring applied for exclusive rights *Salus populi suprema lex!* Let it be shown, now that the war has created an opportunity, that salvarsan can be profitably sold for a dollar a dose or less, and the price is likely to remain reasonable thereafter

I have the honor to remain

Respectfully yours,

S Pollitzer

QUALIFICATIONS FOR MEDICAL OFFICERS AND THE DRAFT

To the Editor —May I say, though not in approval, that you show great restraint in answering the series of questions propounded by "a physician of Colorado" (The Journal, July 14, 1917, p 128) Question 3 asks, "Is it possible for Seventh Day Adventists to get relief from duty, such as examining troops and such other work except caring for the sick, on Saturday?" How can you have patience with any man, presuming that he is in his right mind, who exalts petty denominationalism above patriotism and service at such a time as this? It sounds suspiciously as though your correspondent were at heart a pacifist "Our denomination is planning," etc What have *denominations* to do with this grim business of war? For myself, I wish you had answered the questions a little more vigorously

G Alder Blumer, M D, Providence, R I

An Ode to Health —Health of itself makes life a perpetual joy Nothing daunts, nothing overawes, nothing discourages and nothing overpowers the man and woman possed of health Health means not only vigor and energy of body, but also clarity and strength of mind, purity and beauty of soul The healthy person dominates life instead of allowing life to dominate him He scarcely thinks of his body as consisting of parts or as performing separate functions To him the body is but one harmonious whole He is a unit, a being, a man, complete, vigorous, perfect To such a man work is a joy He regards obstacles as but opportunities for testing his strength He hardly knows what weariness is He never experiences exhaustion Merely to grasp his hand is a pleasure To gaze into his eyes is a joy To hear his voice is to feel a thrill pass over one To peer into his mind serves as a stimulus to higher achievement Health supplies the courage, the aggressiveness in life Without health one is bankrupt regardless of what his financial capital may be He becomes a cipher in the world of real men and women If you have health, then, friends, cherish it, guard it and treasure it as you treasure life, for out of it are the issues of life —Adapted from Sigmund Beldegreen

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed Every letter must contain the writer's name and address, but these will be omitted, on request

ANTIDOTE FOR PETROLEUM POISONING

To the Editor —I would like to know the best antidote for coal oil poisoning

Joseph Cerny, M D, Wilber, Neb

Answer —Sollmann (Manual of Pharmacology, 1917 edition, p 108) states that "when petroleum is swallowed, it produces narcotic effects similar to those of alcohol, with strong gastro-enteritis" It is toxic in proportion to the content of the more volatile products The treatment recommended by Peterson and Haines (A Textbook of Legal Medicine and Toxicology, 1904 edition, **2**, 533) consists in washing out the stomach or administering emetics and the use of purgatives In cases of collapse, warm baths with cold affusions are recommended, the usual respiratory and cardiac stimulants are also indicated

Kerosene is not so toxic as benzin (gasoline) which is more volatile The symptoms and treatment of benzin poisoning were discussed in The Journal, Nov 15, 1913, p 1832

REDINTOL

To the Editor —I have just received a circular in which some bombastic claims are made concerning Redintol What is it?

J E D, *Columbus, Ohio*

Answer —Redintol is a paraffin mixture for the hot wax treatment for burns It is one of the products of Johnson and Johnson, New Brunswick The composition, as given in the circular, is "Paraffines 95 per cent combined with Resina Palaquium and Oleum Picis Liquid," which means little, and, if we presume correctly, was so intended Ordinary paraffin would be an effective and much cheaper dressing Although many physicians would not readily recognize "Oleum Picis Liquid" as oil of tar, yet we venture that not one in ten thousand would know that "Resina Palaquium" is simply gutta percha That a respectable firm such as Johnson and Johnson would stoop to such "patent medicine' methods of exploiting their wares is to be deprecated

REPORT OF BRITISH COMMISSION ON VENEREAL DISEASES

To the Editor —Can you tell me where I may buy, or who publishes the report of the British Commission on Venereal Diseases, parts of which you commented on in The Journal a few weeks ago?

Herman L Kretschmer, M D, Chicago

Answer —It may be obtained from Wyman and Sons, Ltd, 29 Breams Building, Fetter-Lane, E C, London, price 1s 11d

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Hawaii Honolulu, Sept 10 13 Chairman, Dr R W Benz, 1141 Alakea St, Honolulu

Utah January Examination

Dr G F Harding, secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, Jan 5, 1917 The examination covered 18 subjects and included 100 questions The percentage required to pass was 75 Two candidates were examined, both of whom passed Three candidates were licensed through reciprocity The following colleges were represented

College PASSED	Year Grad	Per Cent.
College of Phys and Surgs, Baltimore	(1915)	*
University of Oklahoma	(1916)	*

* No grade given

College LICENSED THROUGH RECIPROCITY	Year Grad	Reciprocity with
Rush Medical College	(1903)	Illinois
University of Nebraska	(1912)	Iowa
University of Pennsylvania	(1910)	Penna

Porto Rico April Examination

Dr Quevedo Baez, secretary of the Porto Rico Board of Medical Examiners reports the written examination held at San Juan, April 2 1917 The examination covered 10 subjects and 100 questions were asked The percentage required to pass was 75 Twelve candidates were examined of whom 8 passed and 4 failed The following colleges were represented

College	Year Grad	Per Cent
PASSED		
George Washington University	(1916)	83
Atlanta Medical College	(1916)	75
Loyola University	(1916)	75, 75
University of Illinois	(1916)	79
University of Maryland	(1916)	84
Vanderbilt University	(1915)	75
Medical College of Virginia	(1916)	84 4
FAILED		
Chicago College of Medicine and Surgery	(1915)	62
Bennett Medical College	(1915)	68 5
Loyola University	(1916)	65 66

Iowa Reciprocity Report

Dr G H Sumner, secretary of the Iowa State Board of Medical Examiners reports that seven candidates were licensed through reciprocity at the meeting held at Des Moines, May 29, 1917 The following colleges were represented

College	Year Grad	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Bennett Medical College	(1913)	Illinois
Rush Medical College	(1914)	Illinois
University of Michigan Medical School	(1916)	Michigan
John A. Creighton Medical College	(1906) (1913) (1915)	Nebraska
University of Nashville	(1907)	Missouri

Georgia April Examination

Dr C. T Nolan secretary of the State Board of Medical Examiners of Georgia reports that nine candidates were licensed by a special examination held at Augusta, April 11, 1917 The following colleges were represented

College	Year Grad.	Per Cent.
PASSED		
Atlanta Medical College	(1917)	90 7 92 5 92 8 93 7 94 5
University of Georgia	(1917)	90 90 4 90 4 93 6.

Georgia May-June Examination

Dr C. T Nolan secretary of the State Board of Medical Examiners of Georgia reports the written examination held at Atlanta and Augusta May 31 June 1 1917 The examination covered 10 subjects and included 100 questions The percentage required to pass was 80 The total number of candidates examined was 83 of whom 81 passed and 2 failed Twelve candidates were licensed through reciprocity The following colleges were represented

College	Year Grad	Per Cent.
PASSED		
Birmingham Medical College	(1913) (1915)	80 7 85 9
University of Alabama	(1911)	87 6
Atlanta Medical College	(1916) (1917)	84 5 80 83 5 84 1 85 85 6 83 7 85.9 86 2 86.2 86 3 86 3 86 4 86 6 86 7 86 7 86.8 86.8 87 1 87 3 87 4 87 6 87 8 87 8 87 8 87 8 88 1 88 2 88 3 88 3 88 4 88 4 88 5 88.5 88 7 88 7 88 8 89 89 1 89 5 89 7, 89 7 89 9 90 90 4 90 4 90 5 90 5 90 5 90 7 91 1 91 4 91 7 94 1
University of Georgia	(1917)	87 8 88 1 88 4 90.2 91 6 92 92 9
Chicago College of Medicine and Surgery	(1916)	83 6 87 5
Loyola University	(1916)	81 3
Baltimore Medical College	(1897)	83 8
Tufts College Medical School	(1916)	85 7
Chattanooga Medical College	(1904)	87.9
Knoxville Medical College	(1908)	80
Meharry Medical College	(1915) (1916) (1917)	85 2 81 9 80 83 83.2 83 2 83 5 84 5 87 89 8
FAILED		
Southern College of Medicine and Surgery	(1913)	72 3
Meharry Medical College	(1916)	75

College	Year Grad	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Rush Medical College	(1892)	Missouri
Hospital College of Medicine	(1898)	Minnesota
Johns Hopkins University	(1912) (1915)	Maryland
University of Maryland	(1915)	Maryland
University of Michigan Medical School	(1915)	Michigan
Meharry Medical College	(1913)	T
Tennessee Medical College	(1909)	W Virginia
University of the South	(1900) (1906)	Tennessee Louisiana
Vanderbilt University	(1915)	Tennessee
Medical College of Virginia	(1908)	Virginia

Book Notices

THE OFFENDER AND HIS RELATIONS TO LAW AND SOCIETY By Budette C Lewis A B, Commissioner of Correction City of New York. Cloth Price $2 net Pp 382, with illustrations New York Harper & Brothers 1917

In this book Mr Lewis utilizes his large experience as Commissioner of Correction in the City of New York as the basis for a serious discussion of the best method of handling this problem As there is no one cause for criminal delinquency so no one method of treating the offender will result in his rehabilitation Especially suggestive is the author s comparison of our treatment of the insane and the criminal In former years he says, the insane were treated largely by confinement practically all afflicted persons being treated alike Gradually special treatment for different classes was provided and special institutions were established, with the result that from 20 to 30 per cent of those committed to the best hospitals for the insane are now either released as cured or put under the supervision of friends or relatives With further study of delinquency he anticipates the development of special treatment for different classes of cases and of remedial and corrective measures which will fit the individual either for release and the resumption of normal activities in society or for supervision and guidance by properly selected persons Influenced by the present day emphasis of prevention rather than cure, he urges the inauguration of remedial measures even for children yet unborn, of child welfare stations, proper schools and training social control during the development period and other preventive methods The court and the offender, the inadequacy of existing legal methods, the relative value of the probation and parole system the indeterminate sentence, the various forms of institutional organization and administration as well as industrial training and the teaching of trades and occupations in prison are carefully considered The chapters on police supervision and the role of the police in suppression of crime are particularly interesting The author especially emphasizes the folly of enacting laws simply as moral pronouncements in advance of sustaining public opinion The appendix contains much interesting matter on self-government in institutions, probation work, state control, etc.

THE NATION S HEALTH THE STAMPING OUT OF VENEREAL DISEASE. By Sir Malcolm Morris K.C V O, Member of Royal Commission on Venereal Diseases Cloth. Price, $1 25 net. Pp 152 New York Funk & Wagnalls Company

This is an account of the efforts that have been made and of the measures that, in the opinion of the writer, are necessary for the reduction and suppression of venereal diseases in England While written especially for members of country, urban and rural district health boards and other sanitary authorities, it is equally suitable for general circulation The problem is set forth without undue exaggeration or sensation The question is discussed purely as a public health problem and the adoption of remedial measures from the public health rather than the moral or sentimental standpoint While the statistics quoted are largely drawn from Great Britain the arguments and conclusions are equally applicable to our own *country* Regarding notification of venereal diseases, while admitting that there is a strong prima facie presumption in favor of it, Morris agrees with the royal commission in opposing any system of notification or reporting at the present time, holding that without the accompaniment of compulsory treatment, notification would merely furnish statistics of the incidence of these diseases without necessarily improving conditions He agrees with the royal commission in feeling that better results may be obtained by education and the increase of facilities for diagnosis and treatment. He is also opposed to regulation, believing that the essential remedy lies in the employment of moral, educational and medical

Social Medicine, Medical Economics and Miscellany

Treatment of War Wounds

Sir Almroth Wright (*Lancet*, 1917, **1**, p 939) points out that the disposition of the microbes in war wounds is fundamentally different from that in ordinary surgical wounds In war wounds the infection is disposed, in part, on lacerated raw surfaces and in part it is carried deep into the substance of the tissues Moreover, the infected lacerated surfaces are left denuded of skin and exposed to injurious external influences, and the infection which is carried down into the tissues is left as a buried infection Every infected dead space must be cut down on and evacuated As a prophylactic measure, every space which would, if left to itself, become an infected dead space—that means every space occupied by an infected projectile or pieces of infected clothing or infected foreign bodies or devitalized infected tissues—must be similarly laid open and cleaned out

In the treatment of the surface infection, he says, one must distinguish between the naked tissue surface made by the projectile, or section with a knife, and the granulating defensive surface, which after a time clothes the naked tissues The former is a nonvascularized surface, and in this is a system of lymph spaces left without mechanical or biologic protection other than that furnished by the emigration of leukocytes and (till that stanches) by the outflow of lymph And the naked tissue surface is not only ill defended against microbic attack, it is also peculiarly liable to damage and to physiologic deterioration of the kind which opens the door wider to such attack Such a surface readily dries up, and drying means the closing down of the capillary circulation Again, seeing that it is nonvascularized, a naked tissue surface will readily take cold, and by that both lymph outflow and emigration are arrested And lastly, a naked tissue surface, if kept wet, will, as soon as the discharges become tryptic, readily undergo erosive digestion Against all these forms of physiologic degeneration special provision should be made in the treatment of naked surface infections A granulating surface offers much greater protection against microbic infection, and is much less subject to damage The tissues are covered in by many layers of protective cells, the lymph spaces are sealed over, and there has been laid down immediately below the surface in newly formed vessels a very abundant blood supply All this gives sensible security against massive microbic invasion from the surface, against the wound taking cold, and against erosive digestion

To start in the case of an open wound with a sterile surface avails nothing War wounds become heavily infected even when the wounds are drenched at the outset with the strongest antiseptics, such as undiluted phenol and concentrated solutions of iodin The first item in treatment will be to get a clean surface For that it will, in the case of the tryptic suppurating wound, suffice to wash away the tryptic pus In the case of the desiccated slough covered wound one must get rid of the sloughs The rational way to do that will be by cleansing digestion Such cleansing digestion can be obtained by treating the wound with hypertonic salt solution This will break down leukocytes, setting free trypsin, and then the free trypsin will rapidly, and especially rapidly if one lets the hypertonic salt undergo dilution, amputate the dead from the living tissues The use of hypertonic salt solution achieves more rapidly, and with less risk of infection, what putrefaction and the destruction of leukocytes by microbes would spontaneously effect The second item of treatment in each case will be to combat the infection which has found a lodgment in the lymph spaces in walls of the wound cavity To deal with this wash out by an outpouring lymph stream, and this is obtainable by treatment with reinforced hypertonic salt solution Hypertonic salt solution is required both for preventing the set-back due to interruption of treatment in transport, and also for remedial treatment

A slight infection of a naked tissue surface may be treated by leaving the wound to heal up from the bottom, limiting oneself to such redressing as would prevent erosive digestion, or the surgeon may close the wound with the minimum delay If the anatomic conditions permit, and the bacteriologic examination shows the wound surface to be practically uninfected, or if the wound is only a very few hours old and the implanted microbes cannot yet have grown out, the wound can, after removal of all dead and foreign matter, be closed immediately, the surgeon standing by to reopen the wound if symptoms of buried infection develop If, on the other hand, bacteriologic examination shows that the wound surface is appreciably infected, or the history of the case makes this practically certain, then closing the wound would be violating all the principles of surgery Microbic infection may be dealt with by the physiologic procedure Physiologic salt solution, and zinc sulphate in 0 25 per cent solution, and no doubt many other heavy metal salts in dilute solution are the sort of agents required But what is, above all, essential to success in physiologic treatment of a surface infection is to be very assiduous in removing any leukocytes which may break down on the face of the wound That is a question of maintaining intact the antitryptic power of the discharges

A second method of procedure, the unreasoning antiseptic procedure, is to employ an antiseptic without laying stress on the assiduous cleansing of the wound surface and the maintenance of good physiologic conditions, without inquiring whether the antiseptic can, when brought into external contact with pus or an infected tissue, penetrate into it, and without asking whether the antiseptic hinders phagocytosis, or destroys the antitryptic power of the blood fluids, or permits or interferes with tryptic action The third method of procedure is the combined antiseptic and physiologic procedure The method of Carrel is such a method. The assiduous removal of corrupted and corruptible discharges is the primary desideratum

Carrel's treatment Wright believes is not a *therapia magna sterilisans* Regarded as an antiseptic method, it is a method of 'fractional sterilization," requiring, say, at the rate of 12 douches a day, a series of 60 to 144 antiseptic douches, superadded to the antiseptic is a series of 60 to 144 physiologic attacks on the microbes—each such attack starting from an atryptic condition While Carrel's work constitutes a very notable practical achievement, regarded as science, it comes short in the respect that adequate control experiments are lacking Wright would not have us assume that when we have successfully combated a surface infection by a series of 60 to 144 therapeutic operations we have reached finality And much less must we, from the fact that a treatment successfully combats surface infections, infer that it is also an effective treatment for infections which penetrate into the deeper tissues It ought to come home to us instead, he says, that we must never look to find for quite different categories of wound infections, that is, for quite diverse conditions, any one routine (antiseptic or physiologic) treatment.

The Riddle of Life as Seen by the Chemist

The riddle of life has long engaged the interest of philosopher and scientist alike Living beings are so complex both in function and in structure that few students venture beyond the broadest hypotheses in the attempt to understand the material background of vital phenomena So far as life can be interpreted in terms of physics and chemistry, it has received considerable attention in the past two or three decades from students of so-called general biology In an address of unusual vision, presented before the American Association for the Advancement of Science a few months ago, P A Levene of the Rockefeller Institute for Medical Research in New York (The Chemical Individuality of Tissue Elements and Its Biological Significance, *Jour Am Chem Soc*, 1917, **39**, 828) summarized certain features of chemical structure and chemical dynamics which he believes characterize living organisms or cells The first of these relates to their permeability This seems now quite definitely to depend on the behavior of the proteins toward the reagents that come in contact with them The conclusion that the permeability of a living membrane is a function of its chemical structure is of preeminent importance As Levene writes, living organisms or cells maintain their existence owing to the capacity of their outer membranes for absorption from the outside world and for elimination from within By the first process the cell obtains materials required for the synthesis of its structural and dynamic elements, by the second it relieves its fluids from unnecessary and cumbersome waste products

Growth—another characteristic of living organisms—also now appears to depend on suitable chemical structure of the available structural products Levene reminds us that the capacity for synthesis is developed to a different degree in different biologic forms Plants and some bacteria are capable of synthesizing their body protein from carbon dioxid and ammonia. The higher animal organisms require as starting material for the synthesis of their proteins at least amino-acids Only a few years ago Levene adds, no distinction was made between the food value of individual proteins or individual amino acids It has often been pointed out in The Journal how the present day point of view has been changed Recent work of Abderhalden Hopkins Osborne, and Mendel and McCollum has established striking relationships between the growth of an animal organism and the structure of the amino-acids available as foodstuff

Another question arises with respect to what constitutes the specificity or individuality of living organisms Is this, too a phenomenon of chemical structure? This leads to a consideration of the chemical make-up of some of the principal tissues Evidently the compounds which they have in common are not the likely carriers of the unique property of individuality Levene points out that the conspicuous tissue components are proteins carbohydrates fats and their complex derivatives nucleoproteins glycoproteins and lipoids There are also enzymes and finally the products of cell activity, hormones and extractives No differences are as yet known for nucleic acids of individual tissues of animal origin nor has any significant distinction between the lipoids derived from different tissues or different species been discovered. The carbohydrates and fats are at best to be regarded as stores of ready energy Evidence of both chemical and biologic nature arguing for the existence of individual differences between protein of different species and of different organs and tissues of the same species has been reviewed in The Journal. For their hormones and enzymes characteristic differences likewise unquestionably exist.

On the basis of such information to which he and other American workers have contributed in no small degree Levene has summarized the following tentative conclusion There is a group of substances such as nucleic acids, lipoids and conjugated sulphuric acids which occur in all tissues all organs of all species constant, invariable in their structure present wherever life is present. They are indispensable for life but carry no individuality, no specificity and it may be just to accept the conclusion of the biologist that they do not determine species specificity, nor are they carriers of the mendelian characters The second group of substances is that of hormones and enzymes These possess an undisputed chemical individuality They may be present or absent in one or more organs, in one or another species, but when present in organs of various species may preserve their chemical individuality In other words, their chemical structure is not a function of species variation Jacques Loeb attributes to them the role of carriers of the mendelian characters such as sex color and form This view seems to be quite acceptable from the chemical angle of vision Finally, Levene adds a third group of substances comprises proteins These seem to show differences of chemical structure with variation of species and because of this, Loeb ascribes to them the role of carriers of species specificity

It requires little critical insight to discover the great gaps in our knowledge in this field Yet there is something inspiring in the constructive imagination of the chemical basis of life Despite the discouragement which profound ignorance may harbor for an assiduous investigator there is some encouragement in the thought, to quote Levene, that 'long after the mystery of the electron and of the atom will be solved there will still remain the riddle of life to puzzle the human mind.'

Medicolegal

"Ophthalmologist" and Optometry

(McNaughton vs Johnson (U S), 37 Sup Ct R 178)

The Supreme Court of the United States affirms an order denying the complainant an injunction to restrain the enforcement of the California statute regulating the practice of optometry, but which provides that it shall not be construed to prevent duly licensed physicians and surgeons from treating the human eye. The court says that the complainant claimed to be a regularly graduated ophthalmologist, which is a school of scientific learning and practice confined to the treatment of the inflammation of the eye and its membranes and in fitting glasses to the human eye, that she did not employ either medicine, drugs or surgery, nor was there anything in her practice hurtful to the individual or dangerous to society, and that there was no law in the state of California prescribing an examination for and regulating the practice of ophthalmology She charged that the act regulating the practice of optometry offended the Fourteenth Amendment of the Constitution of the United States in that it deprived her of her property without due process of law and denied her the equal protection of the laws, and as specifications of the last she instanced the exemption from the provisions of the act of licensed physicians and surgeons, the appropriation to the sole use of registered optometrists of the right to employ any means other than the use of drugs in the measurement of the powers or range of vision, the denial to all other schools of scientific learning and practice the right to measure the range of human vision other than by the use of drugs on equal terms with the physician and surgeon, and contended generally that her occupation being a lawful one not hurtful to the individual or dangerous to the community the state had no power to impose discriminatory regulations on it It is established that a state may regulate the practice of medicine, using this word in its most general sense The complainant tried to escape from the rulings of those cases by which that is established by asserting a discrimination against her She was an ophthalmologist, she averred as above stated She attacked the statute because, to use the language of her counsel, it 'arbitrarily discriminates against every other school of scientific knowledge and practice in favor of the school employing drugs in determining the accommodative and refractive states of the human eye" It undoubtedly does but gives the name of the school that of "optometry" and its practitioners "optometrists" This court cannot suppose that any injury was done her by the difference in names, and yet she gave no other tangible ground of complaint. Whether they are different, and whether the difference is of substantial or unsubstantial degree, she did not inform the court She practiced one of them in preference to the other and for the practice of that one the state has declared that its certificate of competency is necessary The state has such power

Secretary of Corporation Contracting for Treatment of Injured Employee

(Wilson vs St Louis Envelope & Paper Box Co (Mo) 190 S W R 979)

The St Louis Court of Appeals affirms a judgment for $280 in favor of the plaintiff for professional services rendered by him as a physician and surgeon in attending one Brune who was injured while in the employ of the defendant, the part of the plaintiff's bill ($150) for the first two days or covering the 'first aid treatment" having been compromised between the plaintiff and a casualty company at $100, while the suit was pending before the justice of the peace before whom it was commenced The court says that the plaintiff testified that a day or two after Brune was under his care in the hospital and after he had given him the emergency treatment, he called up the place of business of the defendant and talked with some one, whom he could not then identify, and as a result of that conversation continued the treatment As the plaintiff could not identify the person with whom he had this conversation, he was not permitted to give it. However, it afterward appeared from the testimony introduced by the defendant that the person with whom the plaintiff had had the conversation was the secretary of the defendant company, and the plaintiff was then permitted to give his version of that conversation His version was, that calling on the telephone a day or two after Brune was injured, he asked for one of the members of the defendant company and was told that he was talking to the secretary He told the secretary that he was treating Brune for the fracture, that gangrene of the foot and leg had developed, that the chances were the foot would have to come off, and that he would like to have some one who was interested notified, telling the secretary that it was going to be a long drawn out and critical condition and he would like to know to whom he should look for his compensation, etc , that the secretary then said that they would not be responsible for the treatment and that he (the plaintiff) would have to look to Brune, but finally said, "Go on until you hear from me" Never hearing anything further from the secretary or from any one else connected with the defendant, the plaintiff continued the treatment until a cure had taken place The secretary, on his part, positively denied making any such statement, and two or three other witnesses, who testified that they were present when this conversation took place over the telephone, testified that they heard the secretary's part of it and that he had not made the statement in that conversation testified to by the plaintiff The court considers that this presented substantial evidence in favor of the plaintiff The witnesses being before the court, seen and heard by the latter, it was for the court, trying the case as a jury, to determine their credibility and the weight to be given to their testimony The secretary of the defendant had authority to make the contract of employment, and having made it, if he did, and so the trial court found, it carried with it an implied promise to pay the reasonable value of the services rendered thereunder A rehearing was denied

Society Proceedings

COMING MEETINGS

Michigan State Medical Society, Battle Creek, Sept 4 6

AMERICAN PEDIATRIC SOCIETY

Twenty Ninth Annual Meeting, held at White Sulphur Springs, W Va, May 28 30 1917

(Concluded from page 235)

Accidents in Foreign Protein Administration

Dr. Charles Gilmore Kerley, New York A boy who had suffered from asthma since 2 years of age was sensitized to ragweed, goldenrod, maple and horse serum His parents fearing the consequences, if it should ever be necessary to give him antitoxin, desired to have him immunized to horse serum He was given horse serum in one-half minim doses, and these were gradually increased, the treatment being given at intervals of two weeks, until 4 minims were given This dosage was followed by a violent anaphylactic reaction Recovery was slow but complete The second child was sensitized to wheat, oats and barley One day after receiving treatment she suffered an anaphylactic reaction just after leaving the office In the third case the child responded to the scratch test for milk Eight drops of Walker-Gordon milk caused the child to go into collapse She also made a good recovery

DISCUSSION

Dr Fritz B Talbot, Boston The first of these patients was sensitized to horse serum by anaphylaxis If we want to sensitize a person we inject the foreign protein once in two weeks, if we wish to immunize him we give the injections every third or fourth day That would explain the reaction in the first case It is curious that many children react to the emanations of the horse and not to the serum. The horse serum protein is probably in both the serum and the excreta, while there is probably another protein in the emanations of the horse which is not in the serum The second case that reacted to wheat, oats and barley brings up the interesting problem of mass reactions When there is a tendency to react to one group of foreign proteins, particularly in the vegetable world, there is also a tendency to react to the other members of that group We have found a peculiar thing if, for instance, wheat produces a reaction and barley does not, if we stop giving wheat and give barley all will go well for two weeks, then the barley will cause a reaction and the wheat will not do so The feeding of foreign proteins is safer than giving them subcutaneously We have no fatal cases on record from giving the protein into the gastro-intestinal tract, but in cases in which the proteins have been given under the skin there have been fatalities

Dr. B Raymond Hoobler, Detroit I have found that if we give the proteins by the mouth in tablet form, we can obtain desensitization with safety We have just been making a series of tests When we have produced desensitization, a little of the protein to which the patient has been immunized must be given daily until immunization is complete We have been making injections by rectum in that type of patients not able to take cow's milk without developing an erythematous eruption One may give milk by the mouth, reducing it to a very small quantity and giving it with other foods, and by giving these small quantities and very gradually increasing the amount, one may after three or four months obtain desensitization In this type of cases one may, by means of a small rubber bulb, introduce an ounce of milk by rectum every day without trouble

Dr J P Crozer Griffith, Philadelphia Can we regard all the reactions of this kind as protein reactions? For instance, would you regard a reaction to strawberries as a protein reaction?

Dr Fritz B Talbot, Boston It seems to me that we can explain all these reactions under the one head of protein reactions There is no proof that there is anything else that causes anaphylaxis All vegetables contain some pure protein, though in some the amount is very minute

Dr Godfrey R Pisek, New York There is one practical point which should be emphasized, and that is that it takes a longer time than has been mentioned to produce immunity in some instances, sometimes it takes as long as six months

Dr. David M Cowie, Ann Arbor, Mich Attention has been called by Professor Novy to the possibility of overcoming anaphylaxis by rendering the urine alkaline by the administration of potassium acetate We have had a large number of patients with eczema improve under antianaphylactic treatment

Dr Alfred Friedländer, Cincinnati Among our patients who have received large doses of alkali there has been a greatly diminished incidence of serum disease following the use of the serum treatment

Dr Charles Gilmore Kerley, New York The discussion has wandered far from "accidents" Altogether I have treated 107 patients and have had but few accidents I have merely reported these cases to demonstrate that in the matter of protein therapy and in our experiments with foreign proteins our procedures should be very carefully carried out

Chylothorax in an Infant

Dr Godfrey R Pisek, New York Ten days previous to admission to the hospital this baby had had a convulsion. There was nothing in the history to account for the condition. The child was 2 months and 1 week old There were no symptoms except rapid and difficult breathing Except for distinct areas of flatness over the right chest posteriorly with corresponding diminution of breath sounds and slight displacement of the heart, the physical findings were negative A pleural effusion was suspected At aspiration, 6 ounces of milky fluid were withdrawn The laboratory examination showed that this was apparently a true emulsion, composed of fat and seroglobulin The roentgenogram showed an effusion in the right thorax with some displacement of the heart and mediastinal contents to the left There was partial collapse of the right lung The baby was allowed to go home after twenty-two days, being then in good condition and gaining in weight.

Sarcoma of the Brain Simulating Hydrocephalus

Dr L. Emmett Holt, New York The parents first noticed enlargement of the head when the child was 2 weeks old At 7 weeks of age the head measured 21½ inches in circumference, while the chest measured 15 inches The only symptoms were those of ordinary hydrocephalus and hernia cerebri At necropsy the right hemisphere of the brain was found to be quite normal but the left was the seat of a large sarcomatous growth. The unusual features of this case were the absence of symptoms other than those of hydrocephalus, and the extraordinary rapidity of growth of the tumor

DISCUSSION

Dr Charles Gilmore Kerley New York I had a similar case in a child 8 or 9 months of age. The symptoms were those of hydrocephalus An oculist and a neurologist could find nothing else, and the diagnosis of hydrocephalus was made. At operation a sarcoma was found The child was operated on a second time and died within twenty-four hours after the operation

Value of the von Pirquet Test as Controlled by Necropsy Findings

Dr J H Mason Knox Baltimore This article is abstracted in The Journal, this issue, p 311 (see next column)

Effect on Human Milk Production on Diets Containing Various Forms and Quantities of Protein

Dr. B Raymond Hoobler, Detroit Twelve different diets have been tested. We have found that 1 A nutritive ratio 1 6 or narrower seems best adapted to the need of nursing mothers 2. Animal protein is more suitable than vegetable protein in supplying nitrogen for milk and maintenance of the nitrogen balance 3 The protein when derived from nuts and when fed with other vegetable protein is suitable for supplying milk protein and for maintaining nitrogen balance 4 A diet composed exclusively of cereals fruit and vegetables does not supply sufficient protein for elaborating milk protein, and causes a severe drain on the tissues of the mother 5 Of the various forms of animal protein that derived from cow's milk seems particularly suitable for the production of human milk protein as well as for the preservation of maternal tissues A diet that will just maintain the nitrogen equilibrium is in many respects preferable to one which tends to add weight.

Indicanuria in Children

Dr. H M. McClanahan Omaha A careful study of the urine of 536 children varying in age from 4 to 12 years, was made, none of these children had any organic disease Of this series, 20 were hospital patients, 6 of whom were suffering from empyema. All were subjected to operation. Indican was found in excess in all In five who recovered, indican either disappeared or there was only a trace when they left the hospital In the 516 ambulatory cases indican was present in greater or less degree In 97 there was a trace of indican, in 367 indican was present in excess, and in 52 the urine was loaded with indican Of the 516 cases 337 on a second examination showed either a decrease or absence of indican and in the remaining 179 the indican persisted. Of the 52 cases showing excessive indican, all were cases of constipation. Eleven patients, with the complete cooperation of the mothers, were placed on a diet eliminating entirely meat eggs and milk for a period of ten days After this treatment, and a free bowel movement daily the urine of each child, without exception, showed absence of indican. It may be said that indican is present in the urine of the majority of children A trace is probably normal Excessive indican is evidence either of intestinal putrefaction or of some mechanical injury to the mucosa, or to some suppurative process within the body

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below

American Journal of Diseases of Children, Chicago

July XIV No 1

1 *Focal Lesions Produced in Rabbit by Colon Bacilli Isolated from Pyelocystitis Cases H I Helmholz and C Beeler, Chicago —p 5
2 Twenty Four Hour Metabolism of Two Normal Infants with Special Reference to Total Energy Requirements of Infants F B Talbot Boston —p 25
3 Some Analyses of Vegetables Showing Effect of Method of Cooking A M Courtney, H L. Fales and F H Bartlett, New York —p 34
4 *Enlargement of Thymus Treated by Roentgen Ray A. Friedlander Cincinnati —p 40
5 Value of Von Pirquet Test as Controlled by Necropsy Findings J H M Knox Jr, Baltimore —p 47
6 *Intravenous Glucose Injections in Infancy C. H Dunn, Boston —p 52
7 *Postoperative Acid Intoxication J C Jeans and M R Johnston, St. Louis —p 57
8 *Intussusception of Bowel in an Infant A. Peskind, Cleveland —p 63

1 and 2 Abstracted in The Journal, July 14, pp 146 and 147

3 Abstracted in The Journal July 21, 1917, p 233

4 **Thymus Treated by Roentgen Ray**—Three distinct facts are emphasized by Friedländer with reference to enlargement of the thymus (1) The condition is much commoner than is ordinarily supposed. (2) The diagnosis can be made definitely by means of simple physical examination and the Roentgen ray (3) In the Roentgen ray one possesses a therapeutic agent, which, in and of itself, will effect a cure in the vast majority of cases Quite a few of his cases have occurred in babies suffering from congenital syphilis A distinct familial tendency has also been noted as well as an apparent relationship of hypertrophic stenosis of the pylorus and enlarged thymus

5. **Value of Von Pirquet Test as Controlled by Necropsy Findings**—It may be concluded from the results reported by Knox that the von Pirquet test is a most reliable aid in the detection of tuberculosis in children, that a positive reaction indicates invariably a tuberculous focus in the body, and that a persistently negative reaction establishes the fact that there is no tuberculous lesion, except in those extremely ill patients where the presence of tuberculosis can readily be established by physical examination

6 Abstracted in The Journal, July 14, p 145

7 **Postoperative Acid Intoxication.**—The acetone bodies of the blood were somewhat increased after operation in about two-thirds of the children studied, by Jeans and Johnston the maximum amount being found in most instances about twenty-four hours after operation. The plasma carbonate was reduced in about two thirds of the cases, the greatest reduction occurring in most instances about twenty-four hours after operation. When more closely compared there was found to be no close relation between the increase of acetone bodies and the reduction of plasma carbonate. In most instances, especially in those cases in which the plasma carbonate was much reduced, the acetone bodies were entirely inadequate to account for the degree of reduction of plasma carbonate. The undetermined acid factor was apparently of much greater importance than the acetone bodies in the reduction of reserve alkali The starvation incident to operation seems to play no part in the production of this undetermined factor

8. **Intussusception of Bowel in Infant**—An interesting feature in Peskind's case was the obstruction of the bowel with a second intussusception within three weeks after the first operation.

American Journal of Medical Sciences, Philadelphia

July CLIV No 1

9 *Results of Deep Roentgen Ray Treatment in Two Hundred and Fifty Eight Cases of Malignant Tumors A. F Holding New York.—p 1

10 *Syphilitic Aortitis, Report of Cases A R Elliott, Chicago—p 14
11 Congenital Absence of Lung, Report of Case A G Ellis, Philadelphia—p 33
12 *Use of Immune Serum in Treatment of Whooping Cough A Bleyer, St Louis—p 39
13 *Auricular Fibrillation, Some Clinical Considerations S A Levine, Boston—p 43
14 *Typhoid Meningitis, Report of Case S Bayne Jones, Baltimore—p 55
15 *Visceral Findings in One Hundred Syphilitics T Howard, Brooklyn—p 64
16 *Pulsating Spleen in Mitral and Tricuspid Diseases M Manges, New York—p 72
17 Rate of Excretion of Three Nitrogenous Waste Products, Uric Acid, Urea and Creatinin in Nephritis, as Shown by Comparative Studies of Blood and Urine C K Watanabe, New York—p 76
18 Clinical Study of Chlorid Excretory Function C C Wolferth, Philadelphia—p 84
19 Familial Epistaxis, Report of Case H B Richardson, Boston—p 95
20 Diagnosis of Early Pulmonary Tuberculosis J I Johnston, Pittsburgh—p 100
21 Influence of Renal Function on Hyperglycemia and Glycosuria in Diabetes Mellitus A A Epstein, New York—p 103

9 **Roentgen-Ray Treatment in Malignant Tumors**—From a study of these cases by Holding it is evident that the Roentgen rays give excellent therapeutic results in basal cell epithelioma They ameliorate cases of carcinoma of the breast, ovary and testis, tumors of lymphatic structures, especially when these tumors are made up of cells of an embryonal type While one cannot successfully maintain that the Roentgen rays have yet proved to be a cure in cancer, it is worthy of note that these rays, as well as those of radium, applied with removal when possible, produce more uniform improvements in cancer than any other agents heretofore known, and the use of these agents in cancer is established until some effectual constitutional treatment for cancer is found Pending the discovery of some effectual constitutional treatment, every effort should be made to increase the ameliorating effects of the radioactive methods Surgery should not ignore the benefits of these methods in the treatment of cancer, particularly in the postoperative raying and treatment against metastases Most of Holding's improved cases eventually relapsed, and while their lives were prolonged and made more comfortable by the Roentgen-ray treatment, they eventually died of the disease In some instances these ameliorating effects were very striking and deserve particular attention in the hope that one may eventually discover means of making these ameliorations more lasting and even permanent

10 **Syphilitic Aortitis**—Of all the methods of diagnosis to determine the presence of aortic disease, Elliott says the Roentgen ray is the most valuable By its aid one may detect slight changes in the caliber and shape of the vessel which entirely elude the methods of physical examination It is obvious that until there is some dilatation, thickening, alteration of curve, or abnormal pulsation in the vessel, Roentgen diagnosis of aortic disease is impossible In consequence of this fact the Roentgen ray cannot be relied on for its detection in the early stage before mechanical defects begin to make their appearance Clinical considerations and the Wassermann test must establish the diagnosis at this stage

12 **Immune Serum in Whooping Cough**—For the purpose of determining the value of this method, injections of human blood were carried out by Bleyer in the early weeks of this disease in forty-five cases These were divided into three groups of fifteen cases each In Group A the blood injected was from persons who were convalescent or who had recovered from whooping cough within three months In Group B the blood was from persons who had had the disease at more remote periods, and in Group C from persons who, so far as they knew, had never had it The ages of the children in all groups averaged under 3 years The stage of the disease at which the treatment was given was about the same in the three groups Dosage was gaged in a rough way to body weight of donee, from one-tenth to one-fifth of the computed volume of blood of donee was given, this varied between 40 and 125 c c, divided into two, three or four doses and injected into muscle (gluteus) Discoloration often followed the injections in very young infants, in a few there was induration for a day or two, there were no infections, and temperature reactions, so far as could be told in this disease, did not occur The injections in every case were completed within a week in order to avoid hemolytic reactions, reactions to new proteins were not observed The blood used was from a single donor in ten, from two in four, and from three in one Blood not used at once was citrated to 1 per cent

The results of the treatment in the three groups may be summarized In Group A of fifteen children whose average age was 28 months, who received convalescent's blood during the early weeks of whooping cough, there occurred no deaths and no serious complications, the course of the disease was, however, in no definite way different than is usually seen, and was not appreciably influenced by the treatment except in three In Group B, in one case, in which the blood used was from the mother who had had pertussis twenty years before, quite as satisfactory improvement occurred as in any case in Group A, in this group there were no pneumonias which recovered There were also two pneumonias in Group C with one death, and in this group there was one case which seemed to have been very favorably affected by the injections of normal blood

13 **Auricular Fibrillation**—A study made by Levine of 128 consecutive cases of auricular fibrillation diagnosed by electrocardiograms, and of 261 consecutive necropsies, showed that the following general conclusions may be drawn Auricular fibrillation is met with almost as frequently as lobar pneumonia Syphilis plays an unimportant role in the etiology The transient form is common but frequently overlooked About one third of the cases of persistent auricular fibrillation have had one or more attacks of rheumatic fever or chorea and show clinical signs of chronic organic mitral endocarditis Chronic organic mitral endocarditis is quite infrequently found in patients over 50 years of age, either in the living as a result of physical examination, or in the dead by postmortem examination Most patients with organic mitral diseases develop mitral stenosis and only a small number reach the age of 50 years

14 **Typhoid Meningitis**—Bayne-Jones describes a case of purulent cerebrospinal meningitis due to *B typhosus* occurring in the fourth week of a typical case of typhoid The outcome was lethal within a few days after the onset of the meningitis Statistics of the medical clinic of the Johns Hopkins Hospital show that out of 2,768 cases of typhoid there have been five cases of typhoid meningitis Seventeen case reports of this relatively rare phase of typhoid infection are summarized from the literature on the subject These, together, with the fifteen cases collected by Cole, and with the case reported by the author make a total of thirty three proved accounts of the condition in the statistics of typhoid

15 **Visceral Findings in Syphilitics**—Howard's study emphasizes the fact that medical wards will be deprived of their present generous supply of syphilitic wrecks only when every syphilitic patient is treated early, thoroughly, persistently, and with painstaking consideration of his individual requirements

16 **Pulsating Spleen**—The case cited by Manges differs from those thus far reported There was no evidence of aortic regurgitation, unless a short diastolic murmur in the third left space might be accepted as evidence of aortic regurgitation, of which, however, there was no other symptom and there was no Corrigan pulse or double tone in the vessels, the tracings showed no sign of it, the hypertrophy of the left ventricle could easily be explained by the mitral lesion.

American Journal of Orthopedic Surgery, Boston

July, XV, No 7

22 Function of Orthopedic Surgery in Present War D Silver, Pittsburgh—p 509
23 *Transplantation of Hamstring Muscles for Quadriceps Palsy S Kleinberg, New York—p 512
24 *Nailing Operation in Ununited Fractures of Neck of Fem P P Swett, Hartford, Conn—p 521

25 Treatment of Congenital Club Foot C A Stone, St Louis —p 533
26 Low Cost Motor Outfit M C Harding San Diego, Calif —p 542

23 **Transplantation of Hamstring Muscles**—This report is based on a study of twenty-three cases of infantile paralysis in which the inner or outer hamstring muscles were transplanted to the front of the knee to supplement a weakened or to take the place of a paralyzed quadriceps Twenty-one of these cases were operated on by Dr Royal Whitman and two by Kleinberg Final results could be studied in only eighteen cases Sixteen cases were seen one year of more after the operation The ages of the patients varied from 5½ to 20 years The time that had elapsed between the appearance of the paralysis and the date of operation varied from four to nineteen years The results demonstrate that neither the age of the patient nor the length of time since the onset of paralysis has any bearing on the efficiency of the operation Thirteen of the eighteen cases were biceps transplantations In all of these there was gain of voluntary extension of the knee varying from 10 degrees to complete and forcible extension Of the five cases of inner hamstring transplantation in three there was no gain in voluntary extension in one case there was about 5 degrees of extension and that was doubtful and in the remaining case there was 45 degrees of voluntary extension From this review it may be concluded that although the combined power of the inner hamstrings is much stronger than that of the biceps nevertheless when transplanted the biceps acts more forcibly and is the muscle of choice for transplantation

24 **Nailing Operation in Ununited Fractures**—Swett calls attention to the effectiveness of the nailing operation for ununited fractures of the neck of the femur and records the results obtained in eight such cases operated on by him

Annals of Surgery, Philadelphia

July LXVI No 1

27 Service in French Army Medical Corps C Chase Brooklyn —p 1
28 Roentgen Ray in War Surgery and Its Relation to Removal of Foreign Bodies J R. Eastman, Indianapolis and R B Bettman Chicago —p 13
29 Use of Microphone for Removal of Needles in Hand K Bulkley New York —p 19
30 Deep Palmar Hand Infections H L Beye Iowa City Iowa —p 24
31 *Case of Laceration of Inferior Vena Cava Repaired by Suture Recovery H P Cole Mobile Ala —p 43
32 Two Cases of Intrapericardial Traumatic Hemorrhage G B Rhodes Cincinnati —p 44
33 Subcutaneous Injuries of Liver Report of Ten Cases. J M Hitzrot New York.—p 50
34 *Transperitoneal Sigmoidotomy for Removal of Tumors in Mucous Membrane W J Mayo Rochester Minn —p 64
35 Value of Roentgen Examination in Cholelithiasis J T Case Battle Creek Mich —p 69
36 Acute Perforation of Gastric and Duodenal Ulcers Report of Thirty Six Cases E G Alexander Philadelphia —p 72
37 *Relation of Iliohypogastric Nerve to Radical Cure of Inguinal Hernia A V Moschcowitz and H Neuhof New York —p 79
38 Some of the Problems of Plastic Surgery J S Davis Baltimore —p 88
39 Autogenous Bone Graft in Treatment of Fracture of Greater Tuberosity of Humerus W T Davidson Laredo Texas —p 95

31 **Laceration of Inferior Vena Cava.**—While separating dense capsule-like adhesions fixing a tumor to the lower thoracic vertebrae Cole produced two longitudinal rents in the anterior surface of the inferior vena cava one about 3 5 cm and the other about 1 cm in length A very profuse hemorrhage was controlled temporarily by a gauze pack. The tumor was removed rapidly as the patient was almost exsanguinated Both lacerations were quickly whipped over with a single stitch of fine catgut on a fine needle The patient was pulseless at the end of operation, but was carried through a quite exciting twenty-four hours with intravenous saline and was discharged from the hospital within three weeks with the abdominal wound practically healed

34 **Transperitoneal Sigmoidotomy**—For removing growths by transperitoneal sigmoidotomy the abdomen is opened in the midline, suprapubically, and a Balfour self-retaining speculum adjusted A moderate Trendelenburg with a pack gives good exposure Mayo now seldom uses the exaggerated Trendelenburg and in old and adipose persons he is especially cautious in this respect The sigmoid is opened on the anterior longitudinal band as nearly opposite the tumor as possible, and the tumor is exposed, drawn through, and double clamped The growth is removed with the cautery and the defect closed from the mucous side by continuous sutures of chromic catgut after the method devised by Pilcher for the excision of hemorrhoids and covered on the peritoneal side with a few interrupted silk sutures The incision in the sigmoid is then closed with continuous catgut and interrupted fine silk Mayo then passes a red rubber tube up into the sigmoid beyond the line of sutures and fastens it with a catgut suture to the anus, this is left in situ for a few days to prevent gas pressure Mayo has never applied this procedure to frank malignant growths, but for growths similar to papilloma it has been found most efficient.

37 **Iliohypogastric Nerve and Inguinal Hernia**—Two successful experiments performed by Moschcowitz and Neuhof prove that the posterior part of the iliohypogastric nerve is a mixed nerve that is both motor and sensory That part of the iliohypogastric nerve which is exposed in the conventional operation for the radical cure of inguinal hernia is purely sensory The authors advise that part of the iliohypogastric nerve which is exposed in the conventional hernia operation is to be preserved because there is no necessity for dividing it and also because its complete division will be followed by a temporary anesthesia of the hypogastric region After a while regeneration of the nerve occurs and the anesthesia disappears The nerve should be protected from a careless inclusion in the suture line Such a careless inclusion is likely to be followed by a neuralgic pain A careless division of the nerve is not followed by a local paralysis of the internal oblique muscle and therefore has no bearing on the radical cure

Boston Medical and Surgical Journal

July 12 CLXXVIII No 2

40 *Analysis of One Hundred and Thirty three Fractures of Spine Treated at Massachusetts General Hospital J B Hartwell Boston —p 31
41 Classification of Hay Fever Pollens from Biologic Standpoint W Scheppegrell New Orleans.—p 42
42 Artificial Pneumothorax P H Ringer Asheville N C —p 50
43 Case of Pernicious Anemia in Syphilitic Treated with Salvarsan L G Lowrey Boston —p 52

40 **Treatment of Fractures of Spine**—From a study of 133 cases Hartwell believes that laminectomy is absolutely contraindicated (1) in patients in shock or who have received demonstrable injuries in addition to the spinal fracture and the cord injuries accompanying it, (2) in patients with fracture of the cervical spine whose respiration is embarrassed by paralysis of the intercostal muscles, (3) in all patients whose paralysis accompanied the accident and was noted immediately after accident, (4) before the fourth day of convalescence because in cases in which improvement takes place, such improvement cannot be expected to manifest itself before the fourth day, (5) in all patients who are improving under conservative treatment and laminectomy cannot be expected to better conditions if improvement once shown, comes to a standstill (6) in patients whose vertebral fracture is unaccompanied by medullary symptoms, (7) in all patients who have received injuries in addition to the spinal fracture and (8) in all patients with uncomplicated vertebral fracture, whose cord injury accompanied the fracture, until at least four days have passed—the minimum time for spontaneous improvement to manifest itself Operative treatment in the present series has not shown better results than conservative treatment Laminectomy is indicated in the rare cases of gradual onset of medullary symptoms, and in patients who originally free from cord symptoms begin to develop symptoms referable to the cord Tenderness over the site of injury is the most frequent and reliable sign of vertebral fracture. Shock is not common in vertebral fracture regardless of the accompanying cord lesion and the presence of shock is indicative of complicating injuries The

presence of priapism is a bad prognostic sign "Injury to the cord, where present, is an accompaniment of the spinal fracture in a very large majority of cases, not secondary to hemorrhage or edema or persisting bone pressure, which are of relatively rare occurrence.

Bulletin of Johns Hopkins Hospital, Baltimore

July, XXVIII, No 317

44 Undergraduate Instruction in Tuberculosis A K. Krause, Baltimore —p 217
45 *Mineral Metabolism of Experimental Scurvy of Monkey C P Howard and T Ingvaldsen, Iowa City, Iowa —p 222
46 Johns Hopkins and Some of His Contemporaries. H M Hurd, Baltimore —p 225

45 **Mineral Metabolism of Experimental Scurvy of Monkey** —The authors' study of the intake and output of the inorganic elements in human adult scurvy and the experimental scurvy of the guinea-pig and the monkey did not yield sufficiently decisive information to warrant an explanation of the pathogenesis of scurvy

Journal of Biological Chemistry, Baltimore

July XXXI, No 1

47 Fate of Inosite Administered to Dogs. I. Greenwald and M L. Weiss, New York —p 1
48 Citric Acid Fermentation of Aspergillus Niger J N Currie, Washington, D C —p 15
49 *Uracil Cytosin Dinucleotide W Jones and B E Read, Baltimore —p 39
50 Guanin Mononucleotide (Guanylic Acid) and Its Preparation from Yeast Nucleic Acid B E Read, Baltimore.—p 47
51 *Estimation of Chlorids in Body Fluids V J Harding and E H. Mason, Montreal —p 55
52 Intravenous Injections of Beta Hydroxybutyric and Aceto Acetic Acids R. M Wilder, Chicago —p 59
53 *Quantitative Estimation of Dextrose in Muscular Tissue R. Hoagland, Washington, D C —p 67
54 *Blood Lipoids in Anemia W R Bloor and D J MacPherson, Boston —p 79
55 Studies on Enzyme Action Further Experiments on Lipolytic Actions K G Falk, New York —p 97
56 Physiologic Behavior of Raffinose. S Kuriyama and L B Mendel, New Haven, Conn —p 125
57 *Role of Vitamins in Diet T B Osborne and L B Mendel, New Haven, Conn —p 149
58 Modifications of Colorimetric Determination of Uric Acid in Urine and in Blood L. J Bogert, New Haven, Conn —p 165
59 Nutritive Value of Diamino Acids Occurring in Proteins for Maintenance of Adult Mice. E M K Geiling, Urbana, Ill —p 173
60 Studies on Enzyme Action Factors Influencing Proteolytic Activity of Papain E M Frankel, New York —p 201
61 Applications of Gas Analysis. Determination of Carbon Dioxid in Alveolar Air and Blood, and Carbon Dioxid Combining Power of Plasma, and of Whole Blood Y Henderson and W H. Morriss, New Haven, Conn —p 217
62 *"Vitamin" Hypothesis and Deficiency Diseases E V McCollum and W Pitz, Madison, Wis —p 229
63 *Influence of Bile on Phenol Production H. Dubin, Philadelphia —p 255
64 Uric Acid Content of Blood of New Borns F B Kingsbury and J P Sedgwick, Minneapolis —p 261
65 Hydrogen Ion Concentration of Ileum Content J F McClendon, A Shedlow and W Thomson, Minneapolis —p 269

49 **Uracil-Cytosin Dinucleotide** —When nucleic acid is heated with ammonia it produces epinephrin uracil dinucleotide, evidently by hydrolytic rupture of its central nucleotide linkage Jones and Read show that when nucleic acid is heated with mineral acid its central nucleotide linkage is not disturbed, but the two terminal nucleotide linkages are broken and uracil cytosin dinucleotide is formed

51 **Chlorids in Body Fluids** —An alternative method has been devised by Harding and Mason for the removal of the blood proteins, previous to the estimation of the chlorids, by the method of McLean and Van Slyke, which does not require the use of a highly specialized reagent The method is said to be just as easy, simple and accurate as the original coagulation method It is applicable to all the various body fluids It is described in detail

53 **Dextrose in Muscular Tissue** —On account of its reducing action on Fehling's solution, creatinin is an important source of error in the determination of dextrose in muscular tissue Creatinin is precipitated by an excess of phosphotungstic acid, and since that reagent is also an efficient precipitant for other nitrogenous constituents of muscular tissue as well, the use of phosphotungstic acid in excess has proved to be an excellent method for the clarification of a water extract of muscular tissue for the determination of dextrose by means of Fehling's solution A method for the determination of dextrose in muscular tissue based on these principles is described by Hoagland This method has proved to be simple in operation, and has yielded accurate results

54 **Blood Lipoids in Anemia** —The blood lipoid values in anemia were found by Bloor and MacPherson to be normal, or nearly so, as long as the percentage of blood corpuscles remained above half the normal value. When the percentage was below this level abnormalities appeared which, in the order of their magnitude and also of the frequency of their occurrence were (1) high fat in the plasma, (2) low cholesterol in the plasma and occasionally in the corpuscles, and (3) low lecithin in the plasma The lipoid composition of the corpuscles was found to be normal in almost all cases There was, therefore, nothing in their composition to indicate abnormal susceptibility to hemolysis Removal of the spleen resulted in increased total fatty acids and lecithin in the corpuscles and of cholesterol in the plasma. The results were essentially the same whether the patients had anemia or not. The relation between free and bound cholesterol was found to be within normal limits in all cases of anemia except the two cases in which there was carcinoma, thus giving little support to the assumption that an abnormally great combination of cholesterol as ester is a factor in the production of anemia

The low values for lecithin and the high values for fat, which were generally most marked in these cases in which the blood corpuscle percentages were lowest, are regarded as due to deficient fat assimilation in the blood resulting from the lack of sufficient corpuscles to bring about the change of fat to lecithin which has been found to be one function of the corpuscles While the results offer no certain evidence that abnormalities in the blood lipoids are responsible for anemia, the low values for cholesterol, which is an anti hemolytic substance, and the high fat fraction, which may indicate the presence of abnormal amounts of hemolytic lipoids in the blood, are possible causative factors of which further investigation is recommended by the authors

57 **Vitamins in Diet.**—Experiments done by Osborne and Mendel confirm the presence in yeast of something comparable with the so-called water soluble vitamin They offer no evidence regarding the presence or absence of the fat soluble one, since a liberal supply of butter fat was used in all of the food mixtures

62 **"Vitamins" and Deficiency Diseases** —McCollum and Pitz claim that the extensive experimental data at present available support the belief that the water-soluble B contains but a single substance which is physiologically indispensable, rather than a series of such substances, as is demanded by the "vitamin" hypothesis of Funk. Provisionally they have adopted this view, and predict that further inquiry will establish what is now all but demonstrated, *namely*, that unfavorable proportions among the well recognized constituents of the diet as well as of the two but recently appreciated ones, together with unsatisfactory physical factors and injury wrought through the agency of micro-organisms inhabiting the alimentary tract, will account for all the observed types of pathologic functioning which are referable to errors in the diet. They believe that there is satisfactory evidence in support of the view that polyneuritis is caused by a deficiency of a specific substance (water-soluble B) in the diet. They have repeatedly observed the curative effects of antineuritic preparations from various sources, when administered to polyneuritic birds or rats, and accept the explanation of Funk as to the etiology of this disease This is, in their opinion, the only known deficiency disease" in the sense in which this term as been employed in recent years

63 **Bile in Phenol Production** —It is established by Dubin that in the absence of bile from the intestine, large amounts of phenol are produced, this increase being unaccompanied by an increase in the conjugation The unchanged conjugation may be due either to impaired liver function, or a

gradual slow production of phenol or to a combination of both The increased phenol production in the absence of bile from the intestine is due probably to the increased decomposition of the intestinal contents brought about by the lack of digestive activity, and diminished inhibition of bacterial fermentative secretions

Journal of Laboratory and Clinical Medicine, St Louis

July II No 10

66 Bacteriology of Poliomyelitis H Creeley, Brooklyn—p 671
67 Newer Conceptions of Dementia Praecox Based on Unrecognized Work H I Gosline Trenton N J—p 691
68 Possible Derivation of Active Principle of Posterior Lobe of Pituitary Body from Tethelin Produced by Anterior Lobe C. L. A Schmidt and F S May Berkeley Calif—p 708
69 *Studies on Properties and Action of Tethelin C L. A Schmidt Berkeley, Calif—p 711
70 Means of Preventing and Treating Typhoid Particularly in Armies under Condition of War F P Gay Berkeley Calif —p 719
71 Preparation of Pure Sodium Phosphite as Antidote for Mercuric Chlorid Poisoning G A Linhart, Berkeley, Calif—p 722
72 Traumatic Rupture of Heart Report of Case with Uninjured Chest Wall. E. Kellert, Albany, N Y—p 726
73 *Acute Tuberculous Parietal Endocarditis J R Stark Cincinnati —p 731
74 Description and Plans for Installation of Blast and Vacuum Pump W H Walker Chicago—p 737

68 Posterior Lobe of Pituitary Body—Having succeeded in splitting tethelin into products among which is a substance resembling in its action the active substance secreted by the posterior lobe, Schmidt and May believe that the active substance of the posterior lobe of the pituitary body is largely or in part, derived from a splitting of the substance which is a product of the secretion of the anterior lobe and which contains an iminozolyl radicle.

69 Studies on Properties and Action of Tethelin—The properties and action of tethelin the active principle of the anterior lobe of the pituitary body have been studied by Schmidt It was found that tethelin is nonantigenic and nontoxic, hence its use therapeutically is warranted It can not be used as the antigen in the Wassermann test has no effect on the proteins of blood serum, does not cause a specific hyperleukocytosis can be used as a medium for the growth of certain bacteria, is not split by trypsin or lipase, and does not stimulate contraction of the isolated cat or guinea-pig uterus

72. Traumatic Rupture of Heart.—The case reported by Kellert is of interest since is serves to illustrate that extensive trauma to the heart may occur with little or no injury to the thorax. An Italian aged 44 years, was engaged in digging in a sand bank. His fellow workmen a short distance removed, heard him cry out, and on turning about found that the bank had caved in and the patient was surrounded up to the waist by a large quantity of sand He was unconscious, but apparently alive When dug out he was dead The anatomic diagnosis was multiple ruptures of the heart, hemopericardium, rupture of the pericardium, hemorrhagic effusion of the left pleural cavity, subpleural hemorrhage, chronic pleuritis, chronic interstitial myocarditis, acute congestion of lungs and kidneys, small rupture of the left kidney, chronic peritonitis, chronic splenitis and perisplenitis, accessory spleen, superficial abrasions

73 Acute Tuberculous Parietal Endocarditis.—The necropsy in Stark s case disclosed a chronic tuberculous spondylitis, psoas abscess, chronic tuberculous nephritis, chronic tuberculosis of the retroperitoneal glands, metastatic tubercles of the liver, spleen right kidney suprarenals and possibly cystitis and ureteritis, amyloidosis of the liver and kidney, cardiac dilatation myocardial fibrosis, hypertrophied thyroid Although this case, at first glance, might be considered one of generalized miliary tuberculosis yet it presents many interesting features The entire absence of any pulmonary or peritoneal involvement is unusual The kidney lesion was evidently one of extension from the tuberculous spondylitis Involvement of spleen and liver were minimal About forty cases of tuberculous endocarditis are described and only three of true tuberculous parietal endocarditis of which this case is one.

Journal of Nervous and Mental Disease, Lancaster, Pa

June XLV No 6

75 Metastasis of Cancer in Central Nervous System I Levin, New York—p 481
76 Rôle of Consciousness in Development of Delusions R C. Hamill, Chicago—p 523
77 Symptomatic Herpes Zoster E P Boas New York—p 531
78 Wassermann Reaction in One Thousand Two Hundred and Sixty Six Consecutive Admissions to Elgin State Hospital E. W Fell, Elgin, Ill—p 536

Journal of Parasitology, Urbana, Ill

June III No 4

79 Endameba Buccalis Its Multiplication and Periodicity N Nowlin Lawrence Kan—p 143
80 Sporozoon Parasites of Fishes of Woods Hole and Vicinity C W Hahn—p 150
81 Study of Parasitic Protozoa R Kudo—p 163
82 Occurrence of Bothriocephalus Liguloides Leuckart, with Especial Reference to Its Development S Yoshida Osaka Japan —p 171
83 Life History of Gongylonema Scutatum B H Ransom and M C Hall—p 177

Journal of Pharmacology and Experimental Therapeutics, Baltimore

July X No 1

84 *Quantitative Experiments on Liberation of Epinephrin from Suprarenals after Section of Their Nerves with Special Reference to Question of Indispensability of Epinephrin for Organism G N Stewart and J M Rogoff, Cleveland—p 1
85 *Influence of Asphyxia on Rate of Liberation of Epinephrin from Suprarenals G N Stewart and J M Rogoff, Cleveland —p 49
86 *Pharmacologic Studies of Ipecac Alkaloids and Some Synthetic Derivatives of Cephalin A L. Walters and E W Koch Indianapolis—p 73
87 *Agaricin E. McCartney, London—p 83

84 Liberation of Epinephrin from Suprarenals—Further experiments made by Stewart and Rogoff indicate that the entire liberation of epinephrin from the suprarenals is controlled by nerves In a number of acute experiments on cats and dogs, the reduction in the output of epinephrin after section of the various possible nerve paths to the suprarenals was studied In all epinephrin was still found in detectable amount in the blood coming from the suprarenals although the rate of liberation was reduced to a small fraction of the initial amount.

85 Liberation of Epinephrin from Suprarenals—An attempt was made by Stewart and Rogoff to determine whether asphyxia produces a detectable increase in the rate of liberation of epinephrin from the suprarenals, as determined by testing suprarenal vein blood on rabbit intestine and uterus segments The result was negative

86 Pharmacologic Studies of Ipecac Alkaloids—From an analysis of 145 different lots and samples of ipecac, representing in all many thousands of pounds of drug the authors' records show that commercial ipecac averages 2.17 per cent of total alkaloids The lowest assay was 1.83 and the highest 2.84 per cent. The average amount of emetin is to that of cephalin as 63 is to 37 There is little or no difference in alkaloidal strength between Rio and Carthagena ipecac and the partition of the emetin and cephalin in the two species is in general the same From experiments and case reports it would seem that the toxicity of emetin has generally been overstated The usual dosage of 0.5 to 1 grain of emetin per day for six or eight days is certainly on the safe side unless the patient shows an unusual susceptibility to the drug The real danger lies in the too long continued use of therapeutic doses, an entirely unnecessary procedure in the treatment of amebiasis, as the active endamebas will be destroyed by 0.5 or 1 grain doses in six to twelve days, and the encysted forms if present, will not be destroyed by continued emetin injections

87 Agaricin—The results obtained by McCartney show that agaricin is a powerful poison for involuntary muscle, producing a marked and long continued rise of tone It is suggested that this action affecting the muscular tissue surrounding the sweat glands prevents the secretion of the sweat, partly by more or less obstruction and by preventing peristaltic movements, and partly, perhaps, by limiting the blood supply

Medical Record, New York

July 7, XCII, No 1

88 History and Analysis of Methods of Resuscitation S J Meltzer, New York—p 1
89 Treatment of Hay Fever and Asthma by Pituitary Extract and Epinephrin E Zueblin, Cincinnati—p 10
90 Recent Literature Pertaining to Vitamins, Their Application in Infant Feeding L Fischer, New York—p 13
91 Infectious Arthritis J W Torbett, Marlin, Texas—p 14
92 Syphilis and Pregnancy B P Thom, New York—p 16
93 Complete Thrombosis of Abdominal Aorta, Report of Case R A Kelty—p 19
94 Variation in Character of Food Supply as Affected by War J M W Kitchen, East Orange, N J—p 20

Medicine and Surgery, St Louis

June, I, No 4

95 Advantages of Stereoscopic Method of Roentgenography Over that of Single Roentgenogram E G Beck, Chicago—p 337
96 Difficulties in Interpretation of Shadows in Roentgenograms of Kidney and Ureter Region A Hyman, New York—p 343
97 Roentgen Examination of Chest M J Hubeny, Chicago—p 354
98 Roentgenotherapy in Malignant Tumors of Parotid Gland C A Pfender, Washington, D C—p 366
99 Diagnosis of Bone Tumors A C Christie, Washington, D C—p 376
100 Technic of Roentgenography of Kidneys W S Lawrence, Memphis, Tenn—p 385
101 Case of Syphilitic Pleurisy with Effusion, Resection of Rib with Drainage, Recovery P G Skillern, Jr, Philadelphia—p 392
102 Roentgen Ray Demonstration of Gallstone in Ampulla of Vater with Visualization of Common Duct and Right and Left Hepatic Ducts by Bismuth Injection S B Childs Denver—p 398
103 Treatment of Malignancy by Radium R H Boggs, Pittsburgh—p 401
104 Roentgen Ray and Radium Treatment of Leukemia and Hodgkin's Disease I Levin, New York—p 411
105 Subphrenic Abscess and Its Treatment S S Berger and M E Blahd, Cleveland—p 417

Modern Hospital, St Louis

June, VIII No 6

106 Cook County Tuberculosis Hospital, Oak Forest, Ill H L Bailey, Oak Forest, Ill—p 377
107 History of Occupational Therapy W R Dunton, Jr, Towson Md—p 380
108 Remunerative Occupations for Handicapped H J Hall Marblehead, Mass—p 383
109 Occupation and Diversion for Tuberculous Patients A T Laird, Nopeming Minn—p 387
110 Beneficial Effects of Work Therapy for Insane F P Clark, Stockton, Calif—p 392
111 Potteries of Arequipa Sanatorium P K Brown, Manor Calif—p 394
112 Occupation and Its Relation to Mental Hygiene E E Thomson, Chicago—p 397
113 Inoculation of Bacillus of Work G E Barton, Clifton Springs, N Y—p 399
114 Occupation Therapy in Mental Hospital A H Ruggles, Providence, R I—p 404
115 Work in Treatment of Insane Criminals P E Bowers, Michigan City, Ind—p 406
116 Some Principles of Occupational Therapy E G Upham, Milwaukee Wis—p 409
117 Occupational Therapy in New York City Institutions S C Johnson, New York—p 414
118 Occupational Therapy at Muirdale R Horner, Wauwatosa, Wis—p 415
119 Occupational Therapy in Dementia Praecox E Mabie, Napa Calif—p 417

New Jersey Medical Society Journal, Orange

June XIV, No 6

120 Gonorrheal Salpingitis, Its Consideration and Treatment B Bland, Philadelphia—p 217
121 Roentgen Ray as Aid to Surgeon A A Strasser, Arlington—p 224
122 Some Gynecologic Problems Met in General Practice G E Shoemaker, Philadelphia—p 236
123 Gallbladder Infections F M Donohue, New Brunswick—p 240

New York Medical Journal

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124 Army Medical Service T H Goodwin—p 1
125 Function of Military Orthopedic Hospital F H Albee, New York—p 2
126 Medicomilitary Facts Developed by Experiences on European Battle Fronts H K Loew, Fort Brown, Texas—p 5
127 Distal Osteoporosis of Upper Extremity D J Morton, Chevy Chase, Md—p 10
128 Larva Migrans on Mexican Border C P Gray, New York—p 15
129 War and Nervous System S E Jelliffe, New York—p 17

New York State Journal of Medicine

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130 Poliomyelitis as Public Problem A Whitman, New York—p 259
131 Epidemiology of Poliomyelitis J A Conway, Hornell—p 264
132 Epidemic of Poliomyelitis in New York State in 1916 M Nicoll, Jr, New York—p 270
133 Diagnosis of Unparalyzed Cases of Acute Poliomyelitis A Bowen, Rochester—p 274
134 Treatment of Poliomyelitis with Immune Serum E Taylor Burlington—p 279
135 *Cancer of Bladder J A Gardner, Buffalo—p 285
136 Alkaline Carbonates in Urine A L Benedict, Buffalo—p 289
137 Syphilis of Nose and Throat J C Beck, Chicago—p 290
138 Outbreak of Diphtheria in Second Class City P B Brooks, Norwich—p 295
139 Soil Pollution Problem V G Heiser, New York—p 298

July No 7

140 What is Gained by Union of Obstetrics and Gynecology in Teaching Hospital? J M Slemons New Haven, Conn—p 307
141 Training of General Practitioner for Obstetrics J E. King, Buffalo—p 312
142 Primipara Belongs to Expert and Hospital Multipara to Family Physician and Home R H Pomeroy, Brooklyn—p 314
143 New Plan of Postgraduate Medical Education W S Rankin, Raleigh, N C—p 316
144 Gynecology Obstetrics as Department in General Hospital. Reasons and Results at New Greenpoint Hospital E Bishop, Brooklyn—p 323
145 Pain Phenomena in Obstetrics S B Blakely Binghamton.—p 328
146 *Sarcoma Complicating Paget's Disease of Bone, Report of Case. L Heazlit Auburn—p 330
147 *Melanotic Sarcoma of Small Intestine, Report of Case E. A. Vander Veer and E Kellert, Albany—p 335
148 Some Phases of Present Treatment of Fractures J M Hitzrot, New York—p 338

135 and 146 Abstracted in THE JOURNAL, June 9, p 1779

147 Melanotic Sarcoma of Small Intestine—The first symptom in this case was a gradually increasing constipation, which required more and more powerful cathartics to relieve. The second symptom was a feeling of pain in the left upper quadrant, gradually becoming worse Finally acute obstruction came on, the tumor causing an intussusception, and this intussusception was so severe as to cause the attending physician to consider surgical intervention Aside from these symptoms (constipation and pain) there were practically none A tumor practically filled the entire lumen of the ilium Six inches of intestine was resected and an end-to-end anastomosis made Patient returned to the ward and made an uneventful though tedious, recovery She lived very comfortably for about six months, when there appeared to be an extension of the growth in the lungs, and she succumbed to the latter condition

Northwest Medicine, Seattle

June XVI, No 6

149 Congenital Pyloric Stenosis D Lewis and C G Grulee, Chicago—p 161
150 Treatment of Goiter B T King, Seattle—p 168
151 Id J C Moore, Seattle—p 172
152 Surgery of Goiter E O Jones, Seattle—p 175
153 Belt Pin in Lung C A Smith, Seattle—p 178.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

June XXV, No 6

154 Duties in Prevention of Deafness L A Newton, Oklahoma City—p 140
155 Headache and Eye Strain D R Dorente, Fort Smith, Ark.—p 146
156 Differentiation between Upper (Central) and Lower (Peripheral) Motor Neuron Involvement G B Fletcher, Little Rock, Ark.—p 151
157 Cholecystectomy T B Hinson, Enid—p 154
158 Undescribed Physical Sign of Portal Obstruction E. H Martin, Hot Springs, Ark—p 156

Texas State Journal of Medicine, Fort Worth

June, XIII No 2

159 Relation of Medical Organization to Commonwealth. J M Inge, Denton—p 44
160 Physician in Politics M P McElhannon, Belton—p 47

Vermont Medicine, Rutland

June, II, No 6

161 Twenty Years' Practical Experience in Obstetrics T Rice, Brattleboro—p 145
162 Diabetes and Allen Treatment W H Lane, Brattleboro—p 150

FOREIGN

Titles marked with an asterisk (*) are abstracted below Single case reports and trials of new drugs are usually omitted

British Medical Journal, London

June 23 I No 2947

1 Work of British Pathology in Relation to War F W Andrewes—p 829
2 Bacteriology at Front W P Herringham—p 832
3 Trench Fever and Its Allies W P Herringham—p 833
4 Biochemistry and War Problems H D Dakin—p 833
5 Adaptation and Disease J G Adami—p 837

Medical Journal of Australia, Sydney

May 26 I No 21

6 No 2 Australian Casualty Clearing Station in France H S Stacy—p 437 To be continued
7 Anaphylaxis Its Clinical Significance H M Mayo—p 440

June 2 No 22

8 No 2 Australian Casualty Clearing Station in France H S Stacy—p 457

June 9 No 23

9 Experiences in British Military Hospital J B Dawson—p 479
10 Army Dental Corps Work in Reference to Venereal Disease B Thompson—p 485

Sei-I-Kwai Medical Journal, Tokyo

June XXXVI No 6

11 Second Report on Action of Urea on Tetanus Toxin H Sewaki and Y Tagami—p 39

Annales de Gynécologie et d'Obstétrique, Paris

May-June LXXII pp 513-576

12 *The Rights of the Child A Pinard—p 513
13 Indications for Symphyseotomy before Delivery G Fieux—p 518
14 Determination of Date of Fecundation P Ancel and P Bouin—p 527
15 *The Quantity of Blood Lost at the Menses A Lahille—p 535
16 Functions of the Corpus Luteum C Mulon—p 545 Continuation

12 The Rights of the Child—Pinard remarks that the first French Republic took as its standard the Rights of Man and he pleads that the present republic should go on record as establishing the Rights of the Child In the early history of man he recalls the child was safeguarded solely by the maternal instinct "Given the mother s milk and maternal care this ensures the perenneity of the human race" As soon as societies developed the rights of the child were pushed to one side Ten centuries before Christ Hesiod counseled against the marrying of slaves saying pregnancy and the care of the child interfered with the female slave's capacity for work Pinard declares that the prevailing system (in France) of boarding out foundlings and other infants in the country is on a par with Hesiod s advice The statistics for a recent week at Paris recorded 398 births and 141 infants boarded out and 140 of these are to be fed from the bottle. The board paid is 35 francs a month for care with breast nursing and 25 francs a month for bottle feeding How many of the 140 will be alive next fall, he asks The law provides he continues a *curateur au ventre,* to be appointed by the court when the unborn child stands in line to inherit property Pinard urges that a *curateur au ventre* should be appointed for every unborn child that has reached the stage where the movements of its heart can be detected This would entail compulsory notification of every pregnancy

13 Symphyseotomy—Fieux insists that the renaissance of cesarean section in recent years has not done away with symphyseotomy The latter has always proved highly satisfactory in his experience he has had no mortality in his twenty-one cases Symphyseotomy enlarges the pelvis permanently while leaving the organs of reproduction intact, both anatomically and functionally Its advantages over cesarean section are thus manifold in cases of flat pelvis with an obstetric diameter of only 8 or 9 cm. and the fetus not excessively large His last series of six cases are described in detail calling attention in particular to one case in which the four previous pregnancies had resulted in children stillborn or too much injured by forceps extraction to survive. In this case the symphyseotomy was done about the middle of the last month of the fifth pregnancy, and delivery at term proceeded spontaneously The simplicity and ease of the operation thus preceding the childbirth by two weeks, the absence of hemorrhage back of the symphysis—which occurs almost constantly with symphyseotomy during labor—and the absence at this stage of any danger of infection, all commend, he reiterates, this antepartum symphyseotomy

15 Quantity of Blood Lost in Menstruation—Lahille describes the minute precautions taken to collect all the menstrual discharge in seven cases Cotton compresses were used and the distilled water in which they were soaked was evaporated and the iron in the residue determined The iron content of the women's circulating blood was compared with this The authorities mention varying quantities as to the blood lost, from Hippocrates and Galen's 600 and 500 gm to the 120 or 240 gm of the recent physiologies Lahille's conclusions are that the amounts have been much exaggerated Judging from the research related, 25 per cent of the women do not lose over 20 gm of blood in all, 50 per cent lose from 50 to 55 gm, and 25 per cent 65 gm and more He thinks that a tendency to abnormal conditions is suggested when the loss of blood is over 80 gm The dry residue of 100 gm of the menstrual discharge amounts to an average of 21 or 22 gm Blood stains spread so rapidly that even a small amount of blood may give the impression of a large quantity

Bulletin de l'Académie de Médecine, Paris

May 29 LXXVII No 22 pp 683-712

17 *The Principle of Psychic Isolation in Treatment of 'Functional Nervous Troubles' Landau—701
18 Action of Tin Oxid and Metallic Tin on Staphylococcus Infections R Gregoire and A Frouin—p 704
19 Case of Fatal Disease Simulating Acute Articular Rheumatism Caused by Mycobacillus Synovialis A Chantemesse and others—p 708

June 5 No 23 pp 713-754

20 Report on Diseases Prevalent during 1915 in French Possessions in Indo-China Kermorgant—p 738
21 *Bullet in Cauda Equina for Seventeen Months V Bellot—p 749

17 Treatment of Functional Nervous Trouble—Landau relates the details of three typical cases out of fifty in which he has successfully applied what he calls psychic isolation He places the man with the functional nervous trouble in a room with men having a similar trouble of organic origin The man is examined in the presence of the others, and every effort is made to have him see and appreciate the differences between his condition and the organic cases, the difference between the response to various tests, etc., comparing the findings in the various cases with those in his case The man is thus confronted with himself, as it were, and the remarks of his mates with actual organic trouble, as they watch him, supplement the physician's words until the psychic isolation thus realized soon destroys the illusions he has been cherishing in regard to his case

21 Bullet in Cauda Equina—The bullet had evidently made its way between the fibers of the cauda equina without damaging them to any extent The mildness of the symptoms led to the mistaken diagnosis of extradural location, and no attempt was made to remove the bullet It was tolerated for months without apparent injury but the irritation from it finally set up infection and an operation the seventeenth month was unable to arrest the fatal myelitis The operation on the cauda equina was done without mishap under local anesthesia using a 0 5 per cent solution of one part cocain to two parts stovain (Couteaud s mixture)

Lyon Chirurgical

March-April XIV No 2 pp 213-412

22 *War Wounds of the Larynx Trachea and Esophagus M Lannois, A. Sargnon and A d'Auriac—p 213
23 Evolution of Traumatic Hemothorax A. Policard and B Desplas—p 240
24 *Tardy Symptoms after Wounds of the Lung E Devic and V Cordier—p 254
25 *Treatment of Penetrating War Wounds of the Lungs X Delore and L Arnaud—p 280
26 *Indications for Early Operation for War Wounds of the Chest V Combier and J Murard—p 312
27 *Projectiles in the Lungs Thirty Nine Cases (Projectiles du poumon) L. Desgouttes—p 339
28 *Foreign Bodies in the Diaphragm Twenty Five Cases M Patel and M Papillon—p 356
29 *Visit to Hospital in Charge of Depage (L ambulance modèle de la Panne Océan) G Gayet.—p 395

22 **Wounds of the Larynx Region**—In the experiences reviewed, among 2,830 men wounded in the neck and head, in seventy-six the larynx, trachea or esophagus or all combined were involved in the wound This small proportion, scarcely 2 per cent, is explained by the high immediate mortality of such wounds They are mostly shell wounds, and foreign bodies generally have to be removed by an operation from without Cicatricial stenosis of the pharynx and esophagus can usually be corrected with progressive dilatation, as also slight stenosis of the larynx, but when there is much obstruction an operation from without is preferable Aphonia from nervous inhibition in consequence of a war wound in the region, without apparent direct injury to nerves, is often extremely rebellious to treatment while hoarseness and other difficulties in speech generally subside under exercise of the vocal cords

24-26 **Wounds of the Chest**—Devic and Cordier were called on to pass judgment on the fitness for duty of ninety-seven men who had been wounded in the chest six months or more before and their wounds had healed They usually found symptoms indicating pleural adhesions, but these and the functional disturbances seemed to be about the same whether the projectile was still in the lung or not When the projectile is borne without trouble, they say, there is no need to extract it, as the ultimate findings are practically the same in the cases with and without removal of the projectile They do not believe that these sequels or presence of a projectile are liable to entail tuberculosis later However exact the localization and however skilful the surgeon, they would shrink from advising operative removal of a well tolerated projectile

Delore and Arnaud review the lessons learned from seventy-one cases of war wounds The outlook is reassuring provided the lungs were sound previous to the wound The condition usually seems to be progressively improving, but time alone will tell

Combier and Murard emphasize that the lung is exceptionally tolerant of foreign bodies and relatively resistant to infection Hence expectant treatment with immobilization and morphin will suffice for small wounds In fourteen cases they sutured the wound at once after cleaning and conditions rapidly improved in eleven of the cases, three of the patients died, and two required a secondary pleurotomy before final recovery

27 **Projectiles in the Lung**—Desgouttes advocates routine removal of the projectile unless it is in the hilus All his fifty-two patients in this category recovered He sometimes resected one or two ribs, and found roentgenoscopy a valuable aid when the projectile was deep in the tissues

28 **Projectiles in the Diaphragm.**—On the basis of twenty-five cases, Patel and Papillon conclude that as the projectile generally gives little trouble in this region, its prompt removal is not called for unless the heart or phrenic nerve are menaced No complications followed in any instance The projectile can usually be reached between the pleura and the peritoneum

29 **Depage's Model Field Hospital**—The chief of the medical department of the French Army has sent a number of groups of army surgeons to la Panne, Belgium, to study the workings of what is regarded as a "model ambulance" Depage has had plenty of money at his disposal to perfect his equipment and ensure an ample personnel Gayet gives a detailed description of the whole saying "the abdomens and the shocks" are kept at an advanced post, only 3 kilometers from the enemy Extreme specialization is the rule, different sections being devoted to fractures, to neurology, to the eyes, ears, teeth, urinary organs and dermatology, wounds of joints, and of abdomen, skull and thorax There are twenty-four operating tables Gayet exclaims, "What an abyss between the surgery of 1914, which aimed only to save life and avoid compromising the member too much, and the surgery of 1917 which realizes in a few weeks, sometimes in a few days, the integral repair of the traumatism For example, here is a fracture of the femur with crushing of the knee In 1914 this would have meant death, unless possibly averted by a prompt amputation In 1915 it would have meant resection with a usable ankylosis after about a year In 1917, at la Panne, every remotest crevice of the wound is opened up, asepsis is realized in fifteen days or a month, then suture, with possibly bone and skin grafts, and the man is walking in three or four months and can be sent back to the front"

"And this triumph of surgery," he adds, "we do not owe to the Germans" The la Panne hospital has accommodations for 1,000 wounded There are 140 nurses, including 80 English, 53 Belgian, 4 Danish, 2 Canadian and 2 French nurses, 80 orderlies, 7 artisans for making surgical instruments and 12 for artificial limbs, with photographers (including motion picture films and color photography), cooks, etc, to a total of 290 men The Belgian army is said to pay for the upkeep of the hospital, the Red Cross for construction, etc, and the governments of the French and other Allies wounded pay for the days of care for their wounded The total expense of the wounded per capita is about $1 60 per day Part of the services are in the large hotel and cottages of the little watering place The nurses are paid 5 50 francs a day, and their lodging costs them 1 50 francs and the table 3 francs, unless they prefer to live outside

Lyon Médical

June CXXVI, No 6, pp 253 300

30 Distribution of Anopheles Mosquitoes in Southeastern France. L Leger and G Mourriquand—p 253
31 *Intravenous Injection of Colloids and Other Pseudosolutions. H Busquet—p 262

31 **Intravenous Injections of Colloids and Other Pseudosolutions**—Busquet remarks that the list of colloidal metals and other pseudosolutions that have been administered for therapeutic purposes is already a long one Theoretically, he says, it seems dangerous to inject foreign bodies into the blood, no matter how finely divided they may be, but his research on rabbits has shown that colloidal gold injected into a vein does not lake the blood until an amount has been injected corresponding to 1,400 times the therapeutic dose in man Small doses, but still considerably larger than the therapeutic doses, do not notably modify the circulation But crystalline gold, in the dose of 0 005 gm per kilogram, promptly arrested the heart action in dogs and rabbits Other experiences by himself and others are related demonstrating among other things that certain pseudosolutions, such as chaulmoogra oil, induce what he calls tachyphylaxis The blood pressure drops after intravenous injection of 0 0001 gm. per kilogram but repeating the dose a few minutes after the return of the blood pressure to normal fails to modify the blood pressure in any way A practical point emphasized is that most of the pseudosolutions send the temperature up considerably in about thirty minutes, hence the clinical injection should be made only during a relative intermission of the fever After this transient temperature reaction, durable defervescence follows, the natural consequence of the anti infectious action common to all pseudosolutions injected intravenously Quinin in the form of a pseudosolution seems to have an exceptionally powerful therapeutic action Busquet is professor of physiology at the University of Nancy, and he has long made a study of intravenous medication He cites the literature on the subject, mostly by French authors

Paris Médical

June 2 VII, No 22, pp 437 484

32 The Coolidge Tube G Rechou—p 439
33 *The True and Supposed Dangers of Roentgenotherapy Beclere.—p 445
34 The Value of Roentgenotherapy J Belot—p 450
35 *Roentgenotherapy of Tuberculous Processes in Bones E. Albert Weil—p 455
36 *Roentgen Diagnosis of Stenosis of the Large Intestine R Bensaude and G Guenaux—p 467
37 Tardy Sequels of War Wounds of the Thorax. L. Ribadeau Dumas.—p 477

June 16, No 24, pp 501 516

38 *Simplification of Prescribing (Diversion sur la posologie.) P Cornet—p 501
39 *Hypertrophy of the Heart and Fitness for Military Service H Vaquez and E Donzelot.—p 502
40 *Orthopedics at La Panne Hospital. L Lamy—p 505
41 *Clinical Unity of Traumatic Hysteroneuroses J Ferrand—p 509
42 Localization of Projectiles by Reflected Light. A. Chéron.—p 512

33 The True and Assumed Dangers of Roentgenotherapy—This entire number of the *Paris Médical* is devoted to radiology in general Beclere's long experience he states has amply established that the true and only danger with radiotherapy is the excessive dose Radiotherapy with the dose well calculated never does harm It is only within the last fifteen years that we have had devices to measure the quality and quantity of the rays so that scientific radiotherapy is only 15 years old He insists that even with excessive dosage there is no danger except for the skin, although it might be unwise to push the exposures of spleen and thyroid beyond the point where the desired result has been attained On the other hand, exposures of uterine fibromas or of the ovaries do not entail any danger for the normal tissue of the uterus or of organs in the vicinity especially the bladder and intestines The apprehensions in this respect that have been expressed have nothing to justify them Over ten years' study of the subject has failed to reveal anything suggesting that a cancer can be aggravated by the exposures or its generalization hastened The history of the case and present status will usually show when the malignant disease is becoming generalized If radiotherapy is applied at this moment the progressing generalization may be unjustly ascribed to the exposures The repeated acute radiodermatitis on the hands of roentgenologists may entail an epithelioma just as repeated irritation of the lips and tongue in smokers may bring on cancer which may be called either smokers cancer or syphilitics' cancer But if we say that the Roentgen rays breed cancer then we must say also that traumatism heat tobacco, syphilis tubercle bacilli and gastric juice also breed cancer

The truth is merely that all irritations of the skin and mucous membranes which interfere with their nutrition especially persisting ulceration open the portals to the mysterious agent of cancer He has encountered a case of epithelioma which had developed on an old ulceration following a burn from scalding water but it yielded to the actual cautery The epitheliomas of roentgenologists like other epitheliomas of the skin yield to Roentgen and radium treatment just as under other conditions If radiologists after years of incessant work with the Roentgen rays may be justified in fearing a possible epithelioma on hands suffering from chronic trophic disturbances their patients have nothing to apprehend unless possibly tardy ulceration may develop He has never known of malignant degeneration in an ulceration of this kind and the surgical treatment applied for it obviates this possibility In conclusion he reiterates that there is absolutely *nothing* known that would justify the fear that radiotherapy applied to sound skin might generate a cancer in subjacent tissues

35 Roentgenotherapy of Bone Tuberculosis—Weil gives thirty-one radiograms of hands or feet before and after systematic roentgenotherapy to emphasize the great value of this mode of treating tuberculous processes in the long and the short bones The Roentgen rays have a powerful local action, while natural or artificial heliotherapy has a general action stimulating the natural defensive processes With bone tuberculous processes two or three weeks after the first exposure to the Roentgen rays the tissues feel less soft, as if they were drying out, the red and inflamed skin grows brownish and wrinkles, and the ulcerations start to heal from the outside in The subsidence of the whole process can be followed in a series of radiographs Weil usually exposes a short bone, from the dorsal and the plantar side, to a dose of 5 or 6 H units of very hard rays filtered through 2 mm of aluminum. This exposure is repeated monthly for five or six months if necessary For long bones and those of the metatarsus and metacarpus in young people, he uses a 4 mm. filter and 12 H units counted below the filter, or may even begin with 14 H units Such doses cause considerable pigmentation or even desquamation, but with filters of this thickness he says, they are absolutely harmless provided the intervals are not too short or the course kept up too long Five or six series of irradiations generally completed the cure. The intervals at first were always four weeks, but the last exposures were sometimes delayed for six weeks Nearly all the children thus treated were cured, and he has had a wide experience There is scarcely a day in his service at the Trousseau hospital without a large number of small patients with tuberculous bone lesions They come for their exposures but live at home in the same environment as before, which renders the success of the Roentgen treatment particularly impressive "In short," he declares "for bone tuberculosis roentgenotherapy is the best treatment as this alone without adjuvants, can determine the complete cure In case of a fluctuating abscess or large sequesters it may not even be necessary to resort to the bistoury or the curet Thanks to the Roentgen rays the sequesters are often spontaneously eliminated Heliotherapy and sea air are always useful adjuvants but they are not absolutely indispensable unless there are multiple tuberculous foci" He adds that those who believe that two or three applications of the Roentgen rays form the alpha and omega of radiotherapy must learn that the problem is a little less simple than this, but the solution is more effectual

36 Radiodiagnosis of Stenosis of the Large Intestine—Bensaude and Guenaux emphasize the diagnostic importance of the shadows cast by regions containing air or water They regard them as pathognomonic of stenosis They give nineteen illustrations of the typical findings with stenosis at different points saying that they indicate better than anything else the existence of the stenosis and show whether it is probably amenable to operative measures, and which are to be preferred This is also the only means at our command to control the results of operative intervention

38 ***Simplification of Prescribing***—Delage proposes that a list should be published giving for each drug a fixed number indicating the suitable daily dose for an average adult equally removed from the minimum and the maximum doses This number thus established may be known as the pharmacologic equivalent or P E. The tenth of this P E. may be accepted as the therapeutic unit T U The physician prescribes 1, 4 8 or 10 T U according to the age of his patient A prescription might read

Potassium bromid Sodium bromid Ammonium bromid	āā	4 T U
Orange flower water Syrup of bitter orange bark	āā	Q S

Three spoonfuls a day The medicine to be put up for ten days The pharmacist will see that he must take ten times 4 T U = 4 P E of each of the active ingredients dissolve them in 15 spoonfuls of the orange flower water and complete the whole by adding 15 spoonfuls of the syrup The patient taking 3 spoonfuls a day will use up the whole in ten days

39 **Alleged Hypertrophy of the Heart and Military Service**—Vaquez and Donzelot comment that the lower location of the apex of the heart which is currently accepted as a sign of hypertrophy of the heart does not always mean this The distance from the nipple is an unreliable measure, and it is not always easy to count the interspaces exactly The first space below the clavicle may be between the clavicle and a rib or between two ribs The most accurate procedure is to locate the articulation of the head of the clavicle with the first piece of the sternum or the junction of this piece with the second, which always corresponds to the second rib In a long narrow thorax the apex beat is far from the nipple, but the heart as a whole is shown by roentgenoscopy to be rather smaller than usual And yet these are the cases most often labeled 'hypertrophy" on account of the low position of the apex Men with long narrow thorax are often frail, they grew too fast, and they are subject to dyspnea on exertion and palpitations Scarcely a week or even a day passes, Vaquez and Donzelot say, that they do not have to rectify errors of this kind, men being sent back from the front on account of "hypertrophy" palpitations and dyspnea on exertion, when roentgenoscopy shows the heart normal and rather inclined to be smaller than usual They protest against the neglect of roentgenoscopy by physicians, a radiologic equipment is rarely accessible to a physician, but in the matter of hypertrophy of the heart it is indispensable in dubious cases The latest army regulations state that hypertrophy of the heart is not a cause for exemption It justifies discharge only when the area of heart dulness is increased in size and abnormal in outline, the heart rhythm is altered, and symptoms testify to some cardiovascular or kidney lesion

40 **Surgery and Orthopedics at La Panne**—Lamy describes with illustrations several ingenious procedures he noted on a recent visit to Depage's hospital The "loop graft" is proving particularly useful for the leg It is taken several inches above the area to be covered The base of the flap is at the end nearest this area, and this end is not cut across The upper end of the flap is turned back over and sutured to the skin at the upper end of the area to be covered. The graft thus forms a loop, the inside out Later, the attached end is cut and the graft turned over again and sutured to the granulating area, bringing the outside outside once more He saw one case in which a graft was brought in this way down to the leg, looping the loop twice In treating fractures, Depage sometimes passes a wire to hold the stumps together bringing the ends of the wire out through a perpendicular tube with thumbscrew at the top This permits tightening the wire, and when the parts are healed, three or six weeks later, the tube with the wire is easily pulled out Another device is a wire looping around both stumps with traction on the wire through the muscles by a weight and pulley above

41 **Traumatic Hysteroneuroses**—Ferrand rejects the idea recently advanced of "reflex contracture" following a war wound, insisting that all such cases belong in the hysteria class

Presse Médicale, Paris

May 24, XXV, No 29, pp 297 304

43 *Disturbance in Gait with Paralysis of External Popliteal Nerve and Device for Its Correction J Privat and J Belot—p 297
44 *Focusing Sunlight to Cure Warts E Vallet—p 299
45 *Autoplastic Graft to Close Gap in Skull C Villandre—p 300

May 31, No 30 pp 305 312

46 Technic for Intravenous Injection of Quinin (Faut il substituer le bichlorhydrate au chlorhydrate basique de quinine?) E Jeanselme and A Mamaud—p 305
47 *Extraction of Projectiles in the Lungs under Screen Control E P de la Villeon—p 306

43 **Correction of Paralysis of Extensor Muscles of the Leg**—The Paris Surgical Society recently discussed the best means for artificial arthrodesis to remedy paralysis of the external popliteal nerve Privat and Belot here declare that arthrodesis is the wrong treatment for paralysis of the extensor muscles Operative treatment puts an end to all hope of recovering the normal use of the leg, and it creates an infirmity worse than the original trouble On the other hand, the paralysis of the extensors can be easily corrected by wearing a strip of metal one end of which fits over a garter while the other end fits under the sole This suppresses most of the movements of the antagonists and thus balances the muscles of locomotion as in normal conditions There is no further limping, and conditions favor spontaneous subsidence of the paralysis The article is illustrated

44 **Focused Heliotherapy for Warts**—Vallet insists that this method of treating warts has proved absolutely effectual in his experience He used a magnifying glass 7 cm in diameter, magnifying about 4 diameters, focusing the rays at 9 a m The magnifying glass is held at right angles to the sun's rays to focus them in a point on different parts of the wart in turn for three or four seconds each, guided by the patient's experiencing pain Two typical cases of warts on the fingers are illustrated, showing the prompt subsidence of the warts of several years' standing The first exposure was for a total of thirty seconds with very bright sunlight There were a few seconds intermission when the patient felt a smarting In five days the wart had materially changed its aspect and a second exposure was given at 5 p m The smaller wart was then completely cured, but a third exposure was given the larger wart before the cure was complete, the warty tissue being cast off, leaving smooth skin When the focused rays smart, he brings the magnifying glass closer to the skin, thus reducing the concentration of the rays After the wart has shrunken from the effect of the first and most intensive exposure, by the fourth or fifth day he clips off all the mortified parts of the wart with bistoury or razor, not causing any pain The deep portion of the wart is thus ready to be exposed, and this drops off spontaneously in about a week The pit left soon grows up to the level of the skin His constant success with this focused heliotherapy suggests its possible application to superficial epitheliomas, fibromas, nevi—especially raised nevi—and possibly pigmented and hairy nevi

45 **Autoplastic Repair of Gaps in the Skull**—Villandre's experience with 106 patients with cranial defects has demonstrated to his satisfaction that nothing can compare with a bone-periosteum autograft for repairing the gap In the 32 cases in which he applied this technic it proved a success in 100 per cent A cartilage autograft succeeded in 96.8 per cent of 48 cases A sterilized bone plate from another subject caused trouble later in 18.2 per cent of 22 cases, and a "bone hash" in 50 per cent of 4 cases He expatiates on the constantly good and permanent results with the bone-periosteum graft taken from the tibia

47 **Extraction under Screen Control of Projectiles in the Lungs**—De la Villeon has operated in ninety-seven cases by this technic and knows of its application by others to a total of 200 operations for extraction of 230 projectiles in lung tissue All but one of the men recovered promptly and resumed their military service A blunt instrument worked slowly into the parenchyma of the lung does not injure it, provided it keeps to a straight path and does not enter the hilus region The cottony elasticity of the parenchyma of the lung, the blood vessels and air vessels, enables them to automatically yield the way to the rounded tip of the entering instrument, and allow it to pass without injuring them The projectile is located beforehand by having the man stand with his arms over his head, and slowly turn around before the screen The displacement of the shadow during rotation soon locates the projectile with precision For the operation the anesthetized man lies on a frame that pivots on its longitudinal axis to apply this rotation principle at need The tube is below The narrow, blunt tipped forceps must be introduced slanting, through sound tissue The danger points are the intercostal veins and the hilus When the projectile is in the hilus, thoracopneumotomy is preferable He has performed 730 operations for extraction of foreign bodies under screen control, switching on and off the Roentgen rays at will, alternating them with a bright orange-red light He regards this economical radio-operative technic as a great advance as it avoids all useless mutilation Its application to the lungs is the highest expression of this

Progrès Médical, Paris

June 2 XXXII, No 22, pp 179 188

48 *The Complete Operation at the Advanced Station A Chalier—p 179
49 Autoserotherapy of Pleural and Ascitic Effusions L Auguste—p 182
50 The Army Medical Officer R Beaumesnil—p 185

June 9 No 23, pp 189 198

51 *Loss of Memory of the Injury in the Wounded R Oppenheim—p 189 To be continued
52 Statistics of War Wounds of the Eyes E Ginestous—p 195
53 Butter Made from the Pellicles Discarded from Boiled Milk E Dupraz—p 197

48 **The Complete Surgical Intervention at the Advanced Post**—Chalier refers to the cases in which the maximal operation can be done at once, during the pre-infectious stage, and the wound be sutured at once. This treatment can be applied to nearly all the wounds from projectiles except where the tissues have been so crushed that recuperation is out of the question If a general anesthetic is necessary, he prefers to wait for one, two or three days before attempting the complete operation, unless his hand is forced beforehand He remarks that he personally has never seen any evidence that any chemical, by its direct action on a wound, is able alone to arrest the development of germs and ward off complications, but the mechanical clearing out of the wound, alone, without any antiseptics, has a long list of recoveries to its credit The mechanical clearing out, however, exposes to grave danger if the wound is left open, and also if it is not complete, and the wound takes long to heal when left

open The war is impressing more and more the threefold lesson that every wound should be systematically operated, and the operation should come at once after the injury and be complete, finishing with the repair of the region He discusses the details of the technic for the preliminary exploration the mechanical clearing out of the wound and the anatomic reconstitution of the region By immobilizing the limb with the muscles relaxed he has sometimes been able to repair at once large defects This method of treatment is applicable only in a comparatively quiet sector and when the surgeon can keep the patient till the end The primary suture offers no danger if the man is kept under close supervision the surgeon alert to interfere at the least feeling of pain or tension or fever Small shallow and seton wounds generally heal without intervention and if the loss of substance is too extensive for repair, the primary suture cannot be applied Primary suture is also out of the question when there is a foreign body in the wound The only mishap in all his experience was with a deep wound in which an over looked injury of an artery was responsible for secondary hemorrhage The early primary suture is done in the first six, twelve or twenty-four hours but the primary suture may still be possible even as late as the third, fourth or fifth day

51 **Traumatic Amnesia**—Oppenheim cites the opinions and experiences of various neurologists and psychiatrists on traumatic amnesia and then analyzes 215 cases from his own service. The injury had been to the skull requiring trephining in 133 while in 15 there was shell shock without external trauma The gap in the memory corresponding to the injury itself may suddenly fill up but this rarely occurs The lacunar amnesia as he calls it, generally persists but retrograde amnesia extending back to the years before the injury, gradually corrects itself, as a rule or with a little assistance A number of examples of war amnesia are related belonging to these types One young second lieutenant has lost all memory of events since his eighth year, his mind seems to be that of a child of 8. A private suffering from shell shock after a year at the front has no memories later than the shop he left to go to the war About 50 per cent. of the trephined amnesia cases have retained their remembrance of matters connected with their trade or profession, but only 25 per cent of the shell-shock amnesia cases so far as can be determined by oral examination

Revue de Chirurgie, Paris

November December XXXV No 11 12 pp 495 738

54 *Present Status of Treatment of War Wounds of the Knee L Berard—p 495
55 War Wounds of the Foot and Ankle E. Quenu—p 541 Continuation
56 *Treatment at Advanced Station of Wounds of Skull and Brain P Mathieu—p 666
57 Treatment at Advanced Station of Wounds and Fractures of Joints. J Gatellier—p 709 Continuation

54 **War Wounds of the Knee**—The revolution in war surgery in the last few months is well shown by Bérard's statement that when the wounded knee is treated correctly the first day from 80 to 90 per cent of the wounded recover, and the knee is often solid and sometimes functionally capable Even those who do not get proper treatment until septic complications have developed escape most of the dangers which have heretofore rendered wounds of the knees the despair of patients and surgeons He describes a number of typical cases with twenty-five illustrations

55 **Wounds of Foot and Ankle**—In this long instalment of his monograph Quenu summarizes 172 cases separately bringing the number of illustrations to 266 The only wounds of the ankle which had serious results, under proper treatment, were those complicated with fracture of the heel-bone

56 **Skull Wounds**—Mathieu's seventy-one cases of war wounds of skull and brain gave a mortality of 38 per cent. He reiterates the importance of early shaving and disinfecting the skull and early intervention for every war scalp wound, no matter how trivial it may appear He comments on the advantages of local anesthesia and of the natural expulsive force of the brain tissue when the patient coughs or strains If the dura mater is sound it should be respected, but lumbar puncture is useful All sequesters should be extracted, wick drainage usually suffices

Correspondenz-Blatt für Schweizer Aerzte, Basel

June 9 XLVII No 23 pp 721 752

58 Ear Disease in the Swiss Army E Schlittler—p 721 To be continued
59 Operative Cure of Median Paralysis after Injury of the Elbow H Walthard—p 734

Chirurgia degli Organi di Movimento, Bologna

I No 1 pp 1 159

60 *Surgical Correction of Stiff Knee (La mobilizzazione chirurgica delle anchilosi del ginocchio) V Putti—p 1
61 *Prosthetic Surgery with Prostheses under Volitional Control (Progressi attuali della plastica cinematica) G Vanghetti—p 71
62 The Normal and Pathologic Anatomy of the Bony Framework of the Foot, with special regard to Traumatic Lesions F Delitala—p 95
63 Fate of Free Bone Grafts A Serra—p 130

Archives of Surgery of Organs of Motion—This newly founded journal is issued by the director of the Rizzoli Orthopedic Institute of the University of Bologna, V Putti, professor of orthopedic surgery This institution was established in 1896 and has proved a leader in corrective surgery and orthopedics

60 **Operative Mobilization of Stiff Knee**—The seventy pages of Putti's comprehensive study of this subject are accompanied with sixty one illustrations showing the fine outcome in a number of cases treated according to the technic described He has applied it in a total of ten cases, with excellent results in all but two In four the knee can be bent to 100, 95, 85 and 80 degrees, in one to 125, and in two to 50 and 40 degrees, when before, the ankylosis was complete. The interval since the plastic reconstruction of the knee is from two to four years in most, the shortest interval being eight months He opens up the joint extensively, the incision carried high up on the thigh and separates the joint surfaces Then a square flap is cut from the fascia lata, high up on the thigh and this flap is used to make a cap for the upper epiphysis which has been resected to fit. This cap is sutured in place Sometimes he thus caps both of the epiphyses, but his results have been equally good with one cap The patella is usually enlarged and has to be resected to normal proportions He does not approve of complete eversion of the patella which some commend In obtaining access to the joint, he cuts out the tuberosity of the tibia in order to turn back the patella and ligaments When the fascia cap is in place these parts are turned back and the tuberosity is held in place with a nail driven deep into the tibia, through the skin The nail is made like a thumbtack, with an extension head, this enables greater pressure to be applied to the nail and also facilitates its removal The tendon of the quadriceps is lengthened by cutting it across in steps and suturing it

Putti regards it as a fundamental principle that the initial mobilization should be done exclusively by the patient He illustrates the cord and pulley device with which the new joint can be thus passively exercised by the patient himself Local electric and hot air baths, transient immobilization in a plaster cast in maximal extension or flexion, and other means to perfect and hasten the functioning of the new joint are applied as indicated The knee is not used in walking before six weeks are past and the rule is never forgotten that too much and too early use of the knee often does harm He was able to dismiss his patients usually in three months with the knee usable. Improvement generally is progressive later

61 **Vitalization of Artificial Limbs**—As long ago as 1898 Vanghetti published articles urging surgeons in amputating to bear in mind the possible utilization of loops of muscles and tendons for direct autocontrol of the artificial limb to be used later, especially the fingers of an artificial hand. He has published a dozen works on the same subject since, calling attention to the possible advantages of such kinematic prostheses, plastic motors, the vitalization of artificial limbs He here reviews the literature on the subject, and emphasizes

the principles for this kinetic plastics Given two muscles with the possibility of reciprocal antagonistic action, united to form a loop which can slide on a support communicating with the prosthesis, a dual alternating motion can be imparted to the prosthesis by means of only one point of connection A loop formed of two smaller alternating loops, interlocking like the links of a chain, may be able to impart three sets of movements to the prosthesis by the four muscles and three points of connection There has been little practical experience with kinetic plastics to date The tentative efforts of various surgeons with only a case or two each scarcely permit as yet definite conclusions as to the best mode of preparing the stump for autocontrol, but the feasibility of kineplastic amputations has been abundantly demonstrated, especially in Italy

62 **The Skeleton of the Foot**—This illustrated article is the result of study of radiograms of the foot, the accumulations of fifteen years at the Rizzoli Institute The aim was to learn which exposure of the foot gives the most information as to its bony framework, the normal relations between the different bones and supernumerary bones, and the criteria for pathologic conditions The most instructive exposures are the dorsoplantar—the compressing tube parallel to the axis of the skeleton of the foot, and with the external margin of the foot lying on the sensitive plate—the sole and compressing tube exactly perpendicular to the plate Normal radiograms thus obtained show constant points of pseudo-atrophy which must not be confused with true destructive processes

63 **Bone Grafting**—Serra reports the microscopic findings later in five cases Scraps were obtained for examination during a minor operation several months later in the first group and at necropsy over a year later in one case In this case an interposed flap of fascia tissue in the joint had evidently retained its vitality and answered perfectly the desired purposes But the implanted bone had lost its vitality and had shrunk and fractured None of the bone grafts seemed to have retained their vitality

Gazzetta degli Ospedali e delle Cliniche, Milan

May 6, XXXVIII, No 36 pp 553 568

64 Differential Diagnosis of Lymphangioma and Elephantiasis. P Dagasso —p 556
65 Bilharziosis in Italian Colonies in Africa F Mazzone —p 566

May 10, No 37, pp 569 576

66 Operative Cure of Purulent Synovitis in Woman of Seventy Two N Federici —p 571
67 Patriotism in Prescribing (*Nazionalismo scientifico*) E Villa —p 575

May 13, No 38, pp 577 592

68 *Sugared Petrolatum for Dressing War Wounds A S d'Emidio —p 580
69 *Tint of Amniotic Fluid as Sign of Fetal Monstrosity R Costa —p 583

68 **Treatment of War Wounds**—In the course of his remarks on the present status of wound treatment, d'Emidio reports excellent results from the use of petrolatum containing 4 per cent cane sugar, with or without 1 per cent iodoform When the tissues seem to be torpid and healing does not progress well, the epithelium-stimulating action of scarlet red may be utilized He applies it in the form of a salve but only to the edges of the wound, alternating it with physiologic solution If plastic repair is necessary, he warns that pedunculated flaps always give better results and heal quicker

69 **Diagnostic Importance of Tint of Amniotic Fluid**—Costa recalls that a greenish tint indicates fetal suffering and a reddish tint maceration, but it is not generally known that a yellowish tint indicates escape of cerebrospinal fluid This never occurs with a normal fetus, and when it is discovered it permits several presumptions, among them being that delivery will be spontaneous, as the escape of the fluid reduces the diameter of the head Another presumption is that the prognosis as to the viability of the fetus must be reserved, as the causal hydrocephalus, encephalocele, spina bifida, meningomyelocele or other monstrosity is scarcely compatible with extra-uterine life

Pediatria, Naples

June, XXV, No 6, pp 321 384

70 *Epidemic Cerebrospinal Meningitis A Longo —p 321
71 *Vaccine Prophylaxis and Vaccine Treatment of Pertussis. G Caronia —p 358 R Pastore —p 367

70 **Epidemic Cerebrospinal Meningitis**—Longo analyzes the experiences at Catania where there were reported 21 cases of this disease in 1915, 113 in 1916 and 13 to date this year All ages were represented, but 65 per cent were in children under 15, including 8 less than a year old and 12 under 2 Adenoids were common and seemed to afford a predisposition to the disease Fully 38 per cent of the mortality occurred in the younger soldiers The waves of the epidemic were in winter or spring, colds and sore throats evidently afford a predisposition In 2 of the cases the meningitis developed immediately after an injury of the head, a fall from a bicycle or a blow on the back of the head In another case a nursling of 7 months developed convulsions eight hours after its mother had had a severe fright, seeing her son fall from a high wall The convulsions subsided, but three days later the symptoms of meningitis became apparent.

The bacteriologic findings show, he says, that the morphology and biology of the Weichselbaum diplococcus are far from being definitely known The uncertainty of agglutination and the extreme efficacy of the antiserum in some cases and its inefficiency in others also demonstrate this In some cases the onset suggested influenza Headache was a constant symptom, as also rigidity of the back of the neck although of widely varying degree. Two children complained of pain in the spine and legs, limited to the muscles and skin which were extremely sensitive, pressure on the nerve trunks was not especially painful The general mortality in 134 cases was 45 1 per cent but it was only 33 7 per cent in the cases with thorough serotherapy In 19 cases in Longo's own practice, given systematic serotherapy, none died and there were no appreciable sequels, while in 12 not given the serum and in 3 given only one or two injections in all, only 2 of the 15 recovered completely, 7 died and the others were left with deafness and mental impairment, generalized spasms or hydrocephalus, the latter plus amaurosis in one case This difference was the more striking as, except for serotherapy, conditions were much alike in all the cases Adhesions obstructing the interflow of the cerebrospinal fluid were probably responsible for the cases in which the serotherapy failed The nephritis which complicated the meningitis in some cases yielded promptly with the other symptoms to the serotherapy The serotherapy must be begun early and pushed, there are no contraindications, he declares Many factors conspire to render intraventricular injection ineffectual, and explain the poor results obtained with it to date and also with Beriel's method of injecting the antiserum through the sphenoidal fissure in the orbit One of his patients presented symptoms of severe anaphylaxis at the third injection and he changed to a silver salt, but later resumed the antiserum without harm

71 **Vaccine Therapy of Whooping Cough**—Caronia reports 61 28 per cent cured, 32 25 per cent improved and only 6 45 per cent not influenced out of 155 children with whooping cough given systematic vaccine treatment The entire data are tabulated Some required only from three to five injections, others up to ten In the cases with negative results the Bordet-Gengou bacillus was generally not found in the sputum All but six of the 155 were out-patients The injections were made subcutaneously or into a muscle The pertussis had been under way from five to forty-five days in all but three. A large number of the children were less than a year old

Policlinico, Rome

June 10 XXIV, No 24 pp 757 784

72 *Suggestions to Improve the Ophthalmologic Service in the Army G Cirincione —p 757
73 Advantages of Median Longitudinal Incision of the Patella P Nigrisoli —p 762
74 Treatment of Malaria in Soldiers L. Taussig —p 763

72 **The Ophthalmologic Service in the Army**—Among the suggestions advanced is that each army should have a central

hospital for care and treatment of the eyes wounded or diseased At present such cases are scattered through the general hospitals or in small eye infirmaries Rome has six establishments of the latter kind Equally good results with great saving in equipment and personnel would be realized by consolidating them into one large institution with separate quarters for the cases of simple ophthalmia isolating those of gonorrheal origin, other quarters for trachoma cases others for factitious ophthalmia and a fourth department for observation and study of cases In his rounds as inspector he has encountered 200 cases of loss of one or both eyes from purulent conjunctivitis going without specialist care until too late Out of 50 000 men inspected 2 000 had induced conjunctivitis not to mention the others who had succeeded in aggravating an existing eye trouble Only an experienced specialist can sift out these factitious cases—another argument in favor of a single specialist center with each army In conclusion he lists a number of eye affections which should bar from military service unless capable of correction The ten entailing absolute *rejection* are *complete ptosis* covering the cornea, serious deformity of the lids permanent obstruction of the lacrimal canals, essential blepharospasm, exophthalmos with the cornea protruding not less than 1 cm, enophthalmos and also xerosis of the entire conjunctiva incurable corneal complications of trachoma, detachment of the retina, total opacity of the lens and vision of less than 3/10 of normal for both eyes or when vision in one eye is below 1/20 These restrictions as to vision apply also when spherical correction or operation for pterygium does not bring vision above these figures Paralytic and cicatricial lagophthalmos is also a bar to military service if it cannot be corrected by operative measures Recruits with trachomatous conjunctivitis should be *given hospital treatment and* segregated in special troops Hemeralopia and hemianopsia entail temporary or relative incapacity and simple conjunctivitis calls for hospital treatment or temporary incapacity as also keratitis and blepharitis Concomitant squint is no cause for exemption but binocular diplopia and paralytic squint may temporarily incapacitate.

Riforma Medica, Naples

May 26 XXXIII No 21 pp 561 588

75 Italian Contributions to the Bacteriology of Typhoid. A. Ferrannini—p 561
76 Dysentery from Protozoa. C. Vallardi—p 563 To be continued.
77 *Valvular Lesions in Soldiers on Active Service G Galli—p 568
78 *Mask for Stethoscopy of the Mouth A. Campani—p 573

77 **Valvular Lesions in Soldiers on Active Service**—Galli gives the detailed history of fifteen men with a valvular affection serving at the front, discussing their cases from the medical the medicolegal and the military standpoints These fifteen are only a fraction of the number actually encountered in his division in a brief period In some with aortic insufficiency and reflux murmur the disturbance in the circulation is so slight that the men are able to keep up with most fatiguing work. There is no doubt he says, that many soldiers with valvular trouble are capable of useful service not demanding *more of them than they can safely* render His idea is that anyone capable of useful work in civilian life should *be considered fit* for military service of some kind The medical officer of the regiment, knowing his men can tell which should be called on only for light duty This selection by the medical officer is expressly stipulated in the Italian regulations

78 **The Mouth Stethoscope**—Campani recalls the work of Cardarelli and Galvagni on the information to be learned from auscultation of the oral cavity in respect to conditions in the chest He gives an *illustrated description* of a mask to fit over the open mouth to focus and magnify the auscultation

Brazil-Medico, Rio de Janeiro

May 26 XXXI No 21 pp 175 183

79 *Polyneuritis Following Electric Shock from Live Wire. E. Tornaghi—p 175
80 Puncture of the Corpus Callosum for Hydrocephalus. C. Wallau—p 177 Continuation

79 **Polyneuritis from Electric Shock**—The man of 30 was painting a trolley pole when he came in contact with a live wire carrying 2,200 volts There was a mild burn of the left hand and forearm and a month later some weakness and atrophy in this arm were noted Five months later he met with a similar accident, with a current of 600 volts He was in contact with the live wire this time for perhaps two minutes and the right back showed burns of the first degree They healed *in ten* days but there has been persistent paresis during the nearly year and a half to date At first the paralysis of both legs was complete and the pain in the various main nerve regions was intense and persistent, night and day, for ten days with but slight relief from sedatives There was also complete retention of urine at first The man gradually improved, being able to begin to feed himself in about a month, and a few weeks later to get about with a cane During eight years *of* service as physician to the electric supply company, Tornaghi has encountered only ten electric accidents and none of the other patients displayed any tendency to the polyneuritis so pronounced in this case notwithstanding the slight injury of the skin The man was robust but the electric shock five months before may have predisposed the trunk nerves to the agonizing neuralgia

Prensa Medica Argentina, Buenos Aires

May 30 III No 36 pp 389 400

81 *Vaccine Therapy of Diphtheria* (El informe del Instituto Bacteriologico del Departamento Nacional de Higiene sobre la Haptinogenina difterica) J Mendez—p 389
82 *Differential Diagnosis of Cancer by Albumin in Stomach Content C B *Udaondo*—*p 391*
83 **Toxicity of Normal Beef Serum* A Sordelli and G Fischer—p 393
84 Clinical Study of Acute Abdominal Disturbances R E. Pasman—*p 394* Continuation
85 Chapter from Autobiography E R Coni—p 397

82 **Dissolved Albumin in Stomach Content as Sign of Cancer**—*Udaondo* has been applying the *Wolff-Junghans* quantitative test in thirty cases of various stomach affections, twenty-one of simple achylia and eleven of cancerous achylia In the cases of simple achylia the amount of dissolved albumin found in the stomach content one hour after a test breakfast ranged from 20 to 40 units while in the known cancer cases the range was from 200 to 400 This range was paralleled by the cases with hyperacidity, but under all other conditions the range was only from 10 to 40 The test is simple, merely the addition of 1 c c of the reagent to amounts of filtered gastric juice ranging from 0 025 c c to 1 c c, each in 10 c.c of distilled water A white opaque zone forms at the line of junction of the two fluids The amount of dilution in each of the six test tubes is the index The reagent is a mixture of 0 3 gm of phosphotungstic acid, 1 gm. pure hydrochloric acid, 20 gm 96 per cent. alcohol, and distilled water Q S to 200 gm

83 **Toxicity of Normal Beef Serum.**—Guinea-pigs died in from ten minutes to three hours after intravenous injection of 1 or 2 c.c of fresh normal beef serum, but rabbits and dogs seemed to bear it without harm except possibly transient dyspnea In other series of experiments four guinea-pigs bore without harm from 1 to 6 c.c of beef serum heated to 56 C. for half an hour on two successive days Two others died in less than three hours and the seventh had transient dyspnea Of two others injected with 6 or 8 c c of the serum heated four times *the first bore it without disturbance*, the other died in three hours Further trials with fresh serum tested for its hemolytic and agglutinating properties showed that all hemolytic properties could be removed by treating with animal charcoal Serum thus treated however, killed guinea-pigs just the same as untreated serum Heating the serum to 56 C also annuls the hemolytic property, but does not always render it nontoxic for the guinea-pig

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

May 5 I No 18 pp 1433 1526

86 *Spasmophilia a Phenomenon from Loss of Calcium H A. Stheeman—p 1436
87 *Diagnosis and Serotherapy of Epidemic Meningitis. J Hekman—p 1448
88 Formation of Creatin from Arginin in Animal Organism. B C. P Jansen—p 1457

89 *Thyrogenous Heart Trouble P H Enthoven —p 1462
90 Varying Action of Scopolamin with Age of the Solutions H Bolten —p 1466
91 Painless Delivery, Child Falls in Privy Vault. J J T Doyer —p 1469

86 **Spasmophilia Result of Lack of Calcium**—Stheeman is physician in chief of the children's hospital at 's-Gravenhage, and his extensive experience has convinced him that an overexcitable weakness of the nervous system is responsible alike for spasmophilia in young children and the spastic constipation, colic pains in the domain of the mesenteric plexus, enuresis and nervous pallor in older children and for asthenia in adults The signs and symptoms of all these conditions testify to a like cause for all, a constitutional inferiority of the nervous system, of the digestive tract or of the processes of development or all combined—nervous, *peptic or trophic* asthenia The asthenic habitus can be plainly detected in the spasmophilic child as well as in the easily fatigued adult The *vegetative and vasomotor spasms in older children are* the equivalent for the tetany of the younger children

Two of the best known facts in the history of tetany are *its connection with the* parathyroid bodies and with the metabolism of calcium Abnormally low calcium content of the blood seems to accompany spasmophilia and to be found exceptionally frequent with the nervous peptic and trophic disturbances of older children and adults He tabulates the findings in fifty-three children from early infancy to 14 years old, in the twenty-three with abnormally low calcium content in the blood, four had *pronounced* tetany and all the others belonged to the nervous-peptic-vasomotor dystrophic asthenia group or, as he prefers to call it, the group of *constitutional spasmophilic* asthenia in children of all ages The Chvostek sign he regards as equally significant with the Erb sign, from this standpoint The logical deduction is that means to arrest the demineralization of calcium are called for in treatment of this spasmophilic asthenia, and his success with phosphorus has confirmed the correctness of his assumption Phosphorus-cod liver oil seems to have a specific action on *all forms of spasmophilic* disturbances Administration of calcium itself may give transient symptomatic benefit, but the phosphorus-cod liver oil seems to remove the cause *Magnesium and strontium* act like calcium, some think they merely deaden the central nervous system so it does not feel stimuli Phosphorus, on the other hand, seems to restore to the *tissues the power to retain* calcium His tabulated data show in every case but one the return toward normal of the calcium content of the blood under phosphorus treatment. The single exception was in a child with *pulmonary* tuberculosis Any infection, intestinal trouble, etc, should of course be given proper treatment With chronic dyspepsia, the diet must be scrupulously individualized, *remembering that* children with chronic constitutional intestinal disturbances do not thrive on much milk With rachitis, likewise, a milk-poor diet is very important In conclusion Stheeman remarks that *the glands* with an *internal* secretion probably have much to do with this calcium demineralization We cannot refer to its consequences as a spasmophilic diathesis The derangement in the *metabolism is the same for* all, but the morbid manifestations depend on the eventual diathesis, the constitutional predisposition, in each case

87 **Epidemic Meningitis**—Hekman *comments on* the difficulty *of differentiating* this disease, especially in children Neither the clinical *phenomena* from the meningitis itself or from the meningococci have specific import Bacteriologic findings alone are conclusive He reviews recent research and experiences which seem to show that when a distinctly favorable influence from intraspinal injection of antimeningococcus serum *is not soon* apparent, it is unwise to continue it *In* such cases, he continues to withdraw fluid by lumbar puncture but injects the antiserum only intramuscularly By this means the *antiserum* becomes so diluted in the blood that there is no danger of injuring the phagocytes which is liable in some patients from the foreign serum in the concentration in the cerebrospinal fluid *This* varying effect on the phagocytes may explain the wide differences in the action of serotherapy in different cases

In 1907, forty-one cases were recorded in the Netherlands, fifty-four in 1915, and 226 in 1916 Hekman has had twenty-one cases in his service at the Rotterdam public hospital in the last two years, 78 per cent were under 15, and the disease had not been recognized for several days in some of them Many recovered in a few days under serotherapy, in a few others the disease was of the fulminating type In some it *ran an* extremely chronic course, leaving permanent injury of vision and hearing, and emaciation In some patients the opisthotonos was so extreme that there was fear of *decubitus from the* pressure of the back of the head on the lumbar region The resulting clinical picture was like that with syphilitic hydrocephalus

89 **Thyrogenous Heart Disturbances**—Enthoven remarks that the *subjective and objective* heart disturbances induced by uterine myomas and by goiter may in time entail grave conditions, resembling apparently in every respect those with *lost compensation* Compression by the goiter, irritability of the nervous system, and abnormal secretory *conditions in the* thyroid may all contribute to the clinical picture of thyroid origin He found considerable compression of the trachea in 15 per cent of 100 *operative goiter cases, but in five of* them—average age 24—the cardiovascular system seemed normal The others—the average age 35—had severe circulatory *disturbances A pulse of 160* was not infrequent, and still more frequent were rapid fluctuations in the pulse under slight exertion and emotions The goiter of the youngest patient, 17 years old, had developed within five months, with much enlargement of the heart outline and tachycardia The nervous disturbances usually indicate a toxic action on the heart nerves A low blood pressure and dilatation of the small *arteries evidently* cooperated in the acceleration of the pulse The oldest patient, 71, with goiter for thirty years, showed slight heart disturbances In 42 per cent of the total 100 cases *there was decided* cardiovascular disturbance A pulse of 170 or 180 was not uncommon In 79 per cent there was exophthalmic goiter, and in a still larger proportion various nervous disturbances In the total 100 cases the *most serious heart disturbances always* accompanied the smaller and more recently growing goiters Rest of body and mind and various therapeutic measures under which the thyroid *subsides in size, affected also favorably* the heart disturbances The pulse grew slower as the first sign of improvement In three patients the dilatation of the heart was the only sign of cardiovascular trouble and he can suggest no explanation for these cases A rapid, unstable pulse should always suggest examination of the thyroid before ascribing it exclusively always to heart disease.

Hygiea, Stockholm

May 31, LXXIX No 10 pp 465 512

92 Series of Wassermann *Tests Show* Characteristic Curves Important for Prognosis G Ahman —p 465
93 *Soldier's Right to Refuse Operations L. Norrlin —p 476.

93 **Right of the Soldier to Refuse an Operation**—Norrlin discusses the *conditions and regulations* in this respect in Germany and Austria, studying them from both the medicolegal and the military standpoints The question is important not only for military but for *civilian* circles and from the standpoint of both sociology and national economics By persuasion and reasoning it is generally possible to obtain the consent for a needed operation, *but if not, there may be* conditions, he thinks, in which it is deemed best to perform the operation despite the patient's refusal to consent *There* has been considerable literature published on the subject *in the last year or two* Von Eiselsberg denounces as an infringement on personal liberty any attempt to compel a man to submit to an operation against his will *Others, on* the contrary, insist that the wonderful success of the war surgery of the day should justify the military authorities in relieving the wounded of the decision as to whether they *are to be operated on* or not Norrlin regards the obstinate refusal to permit a rational corrective operation as on a par with self-mutilation to avoid military service or to secure an indemnity

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol LXIX, No 5 Chicago, Illinois August 4, 1917

VISCERAL DISTURBANCES IN PATIENTS WITH CUTANEOUS LESIONS OF THE ERYTHEMA GROUP*

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In several papers under a title similar to the one which I have chosen for the chairman's address to the Section on the Practice of Medicine, Sir William Osler[1] collected a group of cases presenting a variety of symptoms but having in common skin lesions of the erythema group Much interest attaches to cases of this type Often diagnostic errors are made in them, especially when the skin lesions do not occur in close relation to the visceral manifestations Puzzling combinations of symptoms appear, some of an almost fulminant type Abdominal symptoms may lead to needless exploratory operations Hematuria may suggest nephritis or renal neoplasm, etc Renal changes analogous to those seen in the skin may lead to such a diminution of renal function as to cause uremia, or perhaps here there is an actual severe acute nephritis to which the skin lesions are secondary The skin lesions are protean in type as indicated by the variety of names our dermatologic friends apply, as erythema simplex, erythema multiforme, erythema iris, erythema urticans, erythema nodosum, erythema papulatum, herpes iris, urticaria, urticaria pigmentosa, angioneurotic edema, purpura simplex, purpura hemorrhagica, peliosis rheumatica, etc

Osler, I think, deserves much credit for grouping these cases together and emphasizing their common basis To regard them as having a close relationship to each other seems to me much simpler than to regard them as different clinical entities Perhaps Osler went too far in including some of the cases, that he did so seems to me likely Synthesis of skin and visceral lesions, however, into an entity in which various combinations of erythema, hemorrhage, edema and exudation occur both in the skin surfaces and within the body, yields a better comprehension of the process than multiple subdivisions with different names according to where the lesion is and what predominates in it This is particularly evident when one recalls the frequency with which a single patient shows in successive crops of skin lesions wide variations in form, with the skin lesion now accompanied by abdominal colic, or joint pains, etc, and now without them

In more recent years with frequent therapeutic use of large amounts of foreign serums, serum sickness has become a well recognized syndrome Cases of the type which Osler described in his papers bear close resemblance in many phases to these patients with serum sickness, and this gives a further reason for regarding them as being entitled to be grouped together, although in this erythema group very little is known about the etiology

My justification for bringing this group again to your attention is their very great clinical interest and the not infrequent mistakes made in their diagnosis I have but little to add to what Osler has so well said of them in his papers, but I can illustrate the condition fairly well by reporting some cases which I have observed recently myself, and in so doing can emphasize again some of their interesting and important features In reviewing my experience with these patients I will not include the simpler cases in which with the skin lesions there are but few visceral manifestations beyond slight arthralgia or arthritis nor those in which purpura, urticaria, etc, are clearly but incidents or complications in the later course of some such chronic condition as nephritis, cardiac disease, cirrhosis, etc, or part of an acute infection such as tuberculosis, acute endocarditis, etc, although these may properly belong in the group on the basis of similarity of skin lesion and possibly a common, though as yet unknown, cause for the skin lesion

REPORT OF CASES

Case 1 (Med No 56) —*Urticaria, albuminuria, hyperpermeability of the kidney* —A year before entering the hospital, a man aged 22, noticed a rash on his forearm and chest which itched and lasted for one to two hours From that time a similar rash appeared almost daily, usually in the afternoon, one-half to one hour after the mid-day meal, sometimes not until later in the day The rash consisted of small white spots with red borders which would appear first on the wrists then spread upward to the forearms, then to the upper arms, across the chest and finally down to the legs In one to two hours it would disappear in the order of its appearance About three months ago he examined his own urine and found albumin This albumin varied in amount and in some specimens was absent It was not, however, an orthostatic albuminuria inasmuch as the specimens free from albumin might occur when the patient was up and about and many specimens passed with the patient flat in bed showed albumin Albumin seemed to appear more constantly in specimens passed two to four hours after a meal containing a considerable amount of protein. There was no relationship between the albuminuria and the occurrence of the urticarial lesions Urine specimens did not show casts and the renal function as measured by the phenolsulphonephthalein excretion, the excretion of lactose and potassium iodid seemed to be quite normal The total nonprotein nitrogen of the blood was normal, so that there seemed to be no definite evidence of a nephritis

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* From the Medical Service of the Peter Bent Brigham Hospital

* Chairman's address read before the Section on Practice of Medicine at the Sixty Eight Annual Session of the American Medical Association New York June 1917

[1] Osler On the Visceral Complications of Erythema Exudativum Multiforme, Am. Jour Med. Sc 1893 **110**, 629, Visceral Lesions of the Erythema Group Brit. Jour of Dermatol 1900, **12**, 227, On the Visceral Manifestations of the Erythema Group of Skin Diseases Am Jour Med. Sc., 1904 **127**, 1 On the Surgical Importance of the Visceral Crises in the Erythema Group of Skin Diseases, Am Jour Med. Sc 1904 **127**, 751

CASE 2 (Med No 1016) —*Purpura, abdominal pain, blood in the stools*—A woman, aged 45, two weeks before admission, noticed red spots on the legs below the knee and then they appeared on the hands, forearms and lower abdomen Those on the arms itched slightly They varied in size from a pinhead to 0 5 cm in diameter, at first bright red and then turning a darker red On the day of admission a slight swelling which was red and quite tender appeared on the left instep and two days later a slightly painful lump appeared in the middle of the forehead about 3 cm in diameter which was raised about 0 5 cm above the level of the forehead At this time pain began to develop in her legs The next day her left knee was painful on motion and her left ring finger was swollen at the second phalangeal joint. The left shoulder joint was tender on palpation The patient had a very slight fever A day or two later the patient had an attack of vomiting at night and the next day there was a new crop of skin lesions more papular than previously and more numerous on the face The joint pains persisted for four to five days, varying in intensity Two weeks after admission she complained of extreme pain in the lower portion of the abdomen The abdomen was markedly distended, more or less rigid and was tympanitic throughout The pulse became smaller, the heart sounds were weak, but she had no fever at this time She was given several high enemas and the pain gradually disappeared, though the distention persisted somewhat longer Two days later, however, the abdomen felt perfectly normal and the pain had entirely disappeared from the abdomen A number of stools examined from the time of admission up to this period of abdominal pain showed strongly guaiac tests Then the stools became negative for blood tests and thereafter for a period of nearly a month the guaiac tests were sometimes positive, sometimes negative During this period the patient's condition greatly improved, and she left the hospital feeling comparatively well During her stay in the hospital albumin was occasionally found in her urine and an occasional cast was seen, but there was no hematuria

CASE 3 (Med No 1143) —*Purpura, abdominal pain, pain and swelling of the ankles, hematuria*—A boy, aged 13, about six weeks before admission, was suddenly seized with sharp cramplike pain in the abdomen, more severe about the region of the umbilicus This pain did not radiate and it lasted for about ten minutes Since then there have been many recurrences of similar paroxysms of abdominal pain and he has never been free from the sensation of discomfort in the abdomen during this time When the pain is severe he occasionally vomits a small amount This vomiting is not preceded by any nausea The first two urine specimens examined in the hospital showed numerous red blood cells, subsequently none were found The patient was distinctly emaciated, his abdomen had a doughy feel Bismuth Roentgen-ray studies of his gastro-intestinal tract showed distinct irregularities in the pyloric and prepyloric region The stomach emptied rather slowly When the bismuth reached the small intestine the loops looked wide and atonic While in the hospital the patient frequently had attacks of very intense abdominal pain which would double him up and sometimes he would vomit. At times food taken several hours previously was found in the vomitus Ten days after the first bismuth Roentgen-ray examination a repetition showed again irregularity in the prepyloric region with a slow emptying time for the stomach After two weeks' stay in the hospital the patient began to improve, his colic-like pains decreased, his appetite improved and he looked very much better After nearly a month in the hospital there was a recurrence of pain in the abdomen, followed the next day by pain and swelling in the right ankle A day later several purpuric spots appeared on the legs These gradually faded away not to recur During the latter part of his stay in the hospital a small amount of blood reappeared in the urine and albumin was present with an occasional cast

CASE 4 (Med No 1069) —*Purpura, diarrhea, blood in the stools, abdominal pain, painful swollen joints*—Three and one-half weeks before the patient, a girl, aged 11, came to the hospital, a rash appeared on the back of the calves and over her lower legs which gradually went up the legs and a few appeared on the trunk Finally a rash appeared on her face The rash was red in color and consisted of discrete, sharply defined macules During the first three days after the rash appeared the patient vomited frequently yellow greenish material, free from visible blood During this time her stools were dark colored One week after the rash appeared her ankles became swollen, and two days later swelling appeared in her hands This swelling in the hands and feet disappeared but recurred again later When the patient came to the hospital there was slight abdominal tenderness, there was a marked macular and papular rash over the legs, feet and arms, in places dark red, in others paler, purplish or yellow in color On one ankle there was a bleb about the size of a dime At this time there was no obvious involvement of any joint After two days in the hospital the patient had a stool in which there was bright red blood and a little later she involuntarily passed about 4 c.c of blood The next day there was diarrhea with several watery stools, most of which showed blood. On this day the right hand and arm as high as the elbow were distinctly swollen, but not very tender Several days later there was a recurrence of the diarrhea, there being very numerous stools most of which contained blood This persisted for several days and then diarrhea gradually decreased, though positive guaiac tests continued to be obtained in her stools for a long time After being in the hospital for a month a new crop of purpuric spots appeared on her feet. Four days later another crop appeared on her thighs Six days later a new crop came on her legs A week later she again had pain in her abdomen and vomited Shortly afterward she passed a large tarry stool She remained in the hospital for nearly four months with frequent recurrences of what has already been outlined and then left in good condition She was seen a year later and reported that she had had a few purpuric spots in the interval but no recurrence of the diarrhea and abdominal pain.

CASE 5 (Med No 3599) —*Purpura, painful joints, hematuria*—A man, aged 25, about two weeks before admission, developed a sore throat. Five days ago his knees became a little painful on motion and after resting would feel stiff For two days his feet have been a little swollen Nine days ago his feet became tender and were painful when he walked about On yesterday he had a little trouble pulling on his boots and later in the day noticed that there was a red rash about his ankles When he came into the hospital on both ankles and over the calves of both legs there were many dark red, hemorrhagic areas from 0 5 to 8 mm in size A few of these were covered with fine crusts Both tonsils were enlarged, red and slightly ragged The urine contained a moderate amount of albumin, and numerous hyaline and granular casts A specimen passed nearly two weeks after admission was smoky and contained many red blood cells This was at a time when the throat had cleared up and the purpura had disappeared After about three weeks in the hospital and when the patient had been up out of bed for three days, purpura returned over the ankles with slight pain and swelling in the ankles The blood was very slight in amount and his urine at this time up to ten days later became more abundant This patient had a positive Wassermann reaction and there was an ulceration in his palate. Renal function was slightly impaired as shown by the blood urea nitrogen which was 25 mg per 100 c.c. of blood, with an index of urea excretion according to McLean's formula, of 40 5 per cent. Some time later the blood urea nitrogen was 21 mg with an index of urea excretion of 49 per cent. The phenolsulphonephthalein test at about this time gave an excretion in two observations of 67 per cent and 50 per cent. respectively and the urine always contained a considerable amount of albumin and numerous casts, hyaline and granular in character, so that the diagnosis of acute nephritis was also made.

CASE 6 (Med No 5372)—*Erythema nodosum, abdominal pain, vomiting, slight diarrhea*—A woman, aged 27, for about four weeks had had grumbling pains in the left upper quadrant of the abdomen On two occasions she vomited and for several periods of about a week there was slight diarrhea Nothing abnormal was noted about the vomitus, no blood was observed in the stools A few days ago the patient felt rather chilly and went to bed The following morning after walking down stairs she noticed a soreness in both legs from the knee to the ankle That night she noticed what she called 'mosquito-bite like' areas over both lower legs Two mornings ago these seemed to be fading but by today had become larger and felt lumpy During this period there has been slight sore throat When she came to the hospital there were numerous discrete lesions over both legs These lesions were slightly raised reddish-blue, or slightly yellow in color, with ill defined edges measuring from 1 to 4 cm in diameter On palpation they give a distinctly nodular feel On pressure most of the color disappears from the lesions When she came in there was slight fever which quickly disappeared All the gastro intestinal symptoms likewise disappeared Her urine examination was normal

CASE 7 (Med No 5543)—*Erythema multiforme bullosum, gastric disturbance*—A boy, aged 13, for the past five years every August has had a gastric upset with an erythema on the right side of his lower jaw This unusally lasts five to six days Eating strawberries often produces a little urticaria and on one occasion he had urticaria from eating fish About a month ago the same appearance as usual occurred on his jaw Then red spots appeared on his legs and arms Soon a blister would form over these red spots which would break in about twenty-four hours, leaving a red area with a little black speck in the center About five days ago blisters appeared in the mucous membrane of his mouth On admission he showed over the mid-portion of his right lower jaw an irregular area of yellow crusts Irregularly scattered over the arms and legs there are small areas of erythema with blackish brown spots in their centers Over the back of his thighs there are a number of red areas, some almost entirely covered with blebs containing a serous fluid The edges of these areas are sharply demarcated Over the palms of the hands and the soles of the feet are a large number of blebs varying in size from a 10 cent piece to a 25 cent piece When the blebs break it is seen that the lesion as far as ulceration is concerned is very superficial On the lips there are similar blebs and apparently they have occurred also on the gums appearing here as erythematous areas slightly ulcerated These lesions rapidly cleared during about ten days stay in the hospital. The patient s urine was normal and there was no blood in the stools

CASE 8 (Med No 5661)—*Erythema multiforme vesiculosum abdominal pain*—Eleven days before admission of the patient a woman aged 29, generalized pain in the abdomen developed This began in the morning and got worse in the afternoon During the night it was severe enough to prevent sleep Her local physician saw her the next day and diagnosed the condition as salpingitis He prescribed a vaginal douche and after a few days the pain subsided Then the pain recurred and she went to a dispensary where she was diagnosed as having gallstones With this attack she vomited and continued to vomit until she was sent to the hospital where she was first admitted on the surgical side. There it was found that she had an irregular, blotchy erythematous eruption over her face and almost the entire body These erythematous areas did not seem to be elevated and they faded on pressure The abdomen showed generalized tenderness Her feet and ankles were swollen and tender In twenty-four hours the skin rash had largely disappeared leaving a slight puffiness of the face, hands and feet. The rash reappeared and a week later a different type of rash appeared on the arms and legs, consisting of small, irregular, dusky red areas, 2 to 6 mm in diameter, which did not disappear on pressure On the tops of many of these, small vesicles appeared which subsequently became slightly pustular The patient now complained of abdominal tenderness and there was slight diarrhea The urine showed a slight amount of albumin, numerous casts and a phthalein output of 15 per cent in two hours which in two or three days had increased to 24 per cent and a week later to 34 per cent The patient had a moderate degree of irregular fever At times the pain in her elbow and wrists became more severe and kept her awake After being in the hospital for nearly a month she had a recurrence of the pain in her abdomen and her left arm from the elbow to the shoulder became swollen, tender and felt hot but it was not red This swelling gradually subsided and the tenderness disappeared From time to time the patient had a severe headache She gradually improved and left the hospital feeling quite well after a stay of about two months Before she left her phenolsulphonephthalein excretion had risen to 55 per cent

CASE 9 (Med No 5908)—*Urticaria, intestinal obstruction*—The patient, a man aged 58 had had a large number of attacks of localized swelling in the right hand and other manifestations of urticaria On the day before coming to the hospital he was in his usual health until the afternoon While having tea his abdomen became distended, there was some belching of gas he felt rather uncomfortable and went to bed He began to have pain in his abdomen chiefly in the epigastrium and along the right costovertebral angle His abdomen was generally distended There was a fair bowel movement about 9 p m Later an enema was given and returned with very little fecal material The distention and discomfort continued so that he slept poorly The next morning, January 7, he came to the hospital, and his abdomen was found to be distended and diffusely painful and slightly tender The abdomen and the character of the pain suggested distinctly intestinal obstruction For twenty-four hours very little result was obtained from enemas or rectal tube Then a good fecal result was obtained and the patient passed a considerable amount of gas Forty-eight hours after admission his abdomen was much less distended and the patient was much more comfortable Four days after admission scattered patches of erythema and edema appeared over his hands, arms and feet which he said were similar to those that he had repeatedly had after eating fish, shellfish or canned goods that were possibly not quite good He recalls having eaten sardines on the day that his abdominal distention and discomfort developed These findings suggested that possibly the intestinal obstruction was due to a similar type of lesion in the intestinal wall and on the next day January 12, bismuth Roentgen rays of his gastro-intestinal tract showed five hours after the taking of the bismuth meal in one of the upper loops of the ileum a dilatation producing a sausage-shaped shadow, the distal end of which was narrow After this all symptoms of intestinal obstruction disappeared, a repetition of the Roentgen-ray study three days later showed no signs of a dilated loop and a repetition ten days later again gave no evidence of obstruction

CASE 10 (Med No 5823)—*Purpura, arthritis, abdominal pain, hematuria, blood in the stools*—A man, aged 20, six years ago had an attack of rheumatism in which both knees were slightly swollen and quite painful, particularly at night Since then he has had a similar attack about once a year About nine weeks ago another attack of rheumatism developed in which his right knee became sore A little bit later his left knee became very painful and slightly swollen The right knee cleared up but the left knee continued and is still swollen and painful For a year the patient has had an ulcerated tooth in the right lower jaw with a swelling nearby from which pus exudes on pressure. Six days before he came to the hospital he began to have a sensation of pressure in the epigastrium giving him enough distress to keep him awake during the night. He raises a good deal of gas Four days ago he began to have hiccups and to vomit about once or twice an hour There was very little nausea. The vomitus was bitter, greenish in color, and never contained anything like blood On admission numerous small purpuric spots were found over both elbows and over the lower part of the sacrum, which he says had been present for three to four days A carious tooth was found as described The left knee was somewhat larger than the right, somewhat painful, not hot, and did not appear to contain fluid His left leg was slightly flexed at the knee and held in that position He had a moderate fever During his first few days in the hospital the urine contained a very slight amount of albumin with a few hyaline casts The phenolsulphonephthalein elimination was 42 per cent in two hours In his stools a strongly positive benzidin test for blood was found The pain in his knee decreased and then after four to five days increased and at this time there appeared on the forearms, wrists, legs, ankles and feet many small slightly indurated erythematous plaques, definitely elevated and about 1 cm in diameter These gradually disappeared and a week after this crop had come out the patient's temperature suddenly rose to 102 F, and there was marked swelling of the left knee and a reappearance of purpuric spots on the forearms, ankles and feet. Now there were definite signs of fluid in the knee joint The patient was unable to flex his knee on account of pain At this time the bad tooth was extracted and pus was found about its root For the next two weeks the temperature ranged between 99 and 100 F Then it rose again to 102 5 F with a fresh crop of purpuric spots on the forearms, ankles and feet The patient had begun to cough up a considerable amount of blood During this time a small amount of blood had appeared in his urine and the casts had increased in number Shortly after this last group of purpuric spots appeared the urine became definitely hemorrhagic in type and thereafter contained practically always a considerable amount of blood, though different specimens might show more or less blood After a month's stay in the hospital the patient had a definite secondary anemia but he had been free from purpuric attacks for some little time, blood in his stools was no longer found and the blood in his urine had somewhat decreased Roentgen-ray examination of his knee shortly after this showed bony enlargement and slight irregularity but no evidence of a destructive process Now the patient's temperature became a maintained temperature first around 101 F and then increasing to 102 F and finally rising to about 103 F with a gradually increasing pulse rate During this period the left knee has continued swollen and painful with some variations up and down in the activity of the process After about two and one-half months' stay in the hospital with this continued fever, continued hematuria and continued activity of the process in the left knee, definite signs were made out of a pulmonary process and tubercle bacilli were isolated from the suptum in small numbers A month prior to this, sputum examinations had shown no tubercle bacilli A Roentgen-ray plate of the chest showed changes suggesting a diffuse miliary tuberculosis with, in places, conglomerate tuberculosis There were no further crops of purpura and the patient died about three and one-half months after admission At necropsy there was an acute miliary and conglomerate tuberculosis of the lungs with areas of caseous pneumonia, apparently an active and recent tubercular process The kidneys were slightly enlarged and showed small foci of hemorrhage. On microscopic examination of the kidneys there was no nephritis but possibly a slight degenerative change in the tubular epithelium with numerous foci of intertubular and intratubular hemorrhage explaining the persistent hematuria No tubercular lesions were found in any of the abdominal viscera The gastro-intestinal tract seemed to be normal The stools for a period of three months before death gave no test for blood

COMMENT

To me it seems that the clearest conception of the condition represented by the patients just described can be obtained by regarding the disease as due to some disturbance in the small blood vessels — vessels of the capillary or precapillary and postcapillary group — almost always focal in distribution, which causes dilatation, diapedesis, exudation, singly or in combination The ultimate cause of this disturbance is completely unknown The areas of vascular involvement may be either in the skin surfaces, mucous surfaces, serous surfaces, subcutaneous tissues, muscles, or viscera With this possibility of distribution symptoms may be extremely various and in recurring attacks, for the condition is usually recurrent, very different symptoms appear in the same individual

With this in mind the variety of skin lesions is easily understood The frequent arthritis has its analogy in the arthritis of serum sickness and the chronic joint disturbances with frequent exacerbations in some patients with hemophilia Diarrhea, blood in the stools and abdominal colic occur as there is serous exudation or hemorrhage into the intestinal wall Colic is due probably to local changes in the intestinal wall causing spasm This is suggested in Case 3, where Roentgen-ray study showed evidence of muscle spasm at the pyloric end of the stomach In the colic of chronic lead poisoning we have seen evidences in the Roentgen ray of spasm in intestine or stomach during the period of colic, which is in support of the view that observed spasm is related to gastro-intestinal disturbance Such spasm and disturbances in the bowel wall can lead to actual intestinal obstruction, as in Case 9, where we could demonstrate the obstruction by Roentgen ray in an ileal loop

The exact relation of the renal disturbances is not quite so clear Hematuria could occur in the same way as blood in the stools from disturbances in renal vessels That this does happen is well shown by Case 10, where necropsy showed focal hemorrhages in the kidney without signs of nephritis This patient had pulmonary tuberculosis, but the clinical course and necropsy findings indicated an acute process developing during the later course of the skin and visceral disturbances of the erythema group His urine during life yielded no tuberculosis by guinea-pig test and at necropsy no tubercular lesions were found in the kidney

In how far these renal lesions are to be considered as acute nephritis it is difficult to say In several of our cases functional study showed markedly decreased renal function Five of Osler's twenty-nine reported patients died with what was termed uremia That they had severe disturbances in renal function is evident Whether this was nephritis or suppressed renal function from edema and hemorrhage into the kidney is not certain, there were no necropsy examinations except in one patient referred to by Osler in whom proliferative glomerular nephritis was found Some of the uremic manifestations might easily have resulted from lesions in the brain of the same nature as those occurring in skin and viscera and not been actually uremic

The difficulty of placing the renal lesion is well illustrated by a patient of mine at the Carney Hospital not included in the above group of cases He was a boy of 15 who, September 15, had sudden attacks of severe colicky abdominal pain with some diarrhea September 22, an appendix normal except for several concretions was removed October 4, abdominal symptoms as before his appendectomy recurred and he vomited These abdominal symptoms recurred and he came back to the hospital on October 11 A purpuric rash was found on his legs and crops of these recurred later Now he had albumin, blood and casts in his urine He left the hospital again, October 22, and soon developed edema November 12, he returned in a markedly water logged condition November 26, following a dietary indiscretion he had a series of convulsions and was stuporous After a few days this condition cleared up and his edema dis appeared so that between November 18 and December 15 he lost thirty-seven pounds in weight. Six months later his urine contained much less albumin and a few casts and he looked very well. One and one half years later and three years later he was seen. The last time his urine showed a very slight trace of albumin and a very rare hyaline cast. His blood pressure was normal and for two years he had been steadily at work in a machine shop running a lathe and feeling perfectly well.

Was this a case of nephritis with a complicating purpura or does it belong to the group I have been discussing? I must confess I do not know. Abdominal pain of various types does occur often in typical chronic nephritis without skin lesions and I usually call my students' attention to this as a type of symptom in chronic nephritis that often leads to diagnostic errors. On the other hand I am inclined to think that in many patients hematuria, albuminuria, and other renal disturbances occur as part of the disease entity here under consideration and that these renal disturbances are due to kidney lesions similar in nature to those occurring in the skin. In this sense the renal lesions are not truly those of nephritis. This probably explains why in these patients with seemingly so severe a renal lesion progression into a true chronic nephritis is not often seen.

CONCLUSIONS

There is a definite clinical entity in which with skin lesions of the erythema group (purpura, erythema, urticaria angioneurotic edema) visceral lesions occur as the result of the same type of lesion. The most common of these visceral manifestations are arthritis, gastro-intestinal symptoms, hematuria and various disturbances of renal function. The visceral disturbances occur unaccompanied by the skin lesions. The symptomatology of the group is very complex and without the presence of the skin lesions at a given time the cases present great difficulties in diagnosis.

THE INFLUENCE OF THE HIGH CALORY DIET ON THE COURSE OF TYPHOID FEVER*

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The various studies concerning the high calory diet which have been carried out in Bellevue Hospital during the last ten years, have established beyond question the value to the individual typhoid patient of the maintenance of an optimal state of nutrition.[1] Contrary to the common belief, it was found that large quantities of selected foods could be taken without disturbance of digestion. Likewise, it was found that food is absorbed by the typhoid patient practically as completely as by healthy men. Under the high calory diet the febrile loss of body protein is reduced to a minimum or altogether prevented. Investigations of the total metabolism of typhoid patients have shown that large amounts of food are consumed with avidity, any excess over the immediate needs being laid by for future use.

None of these studies, however, furnished more than indirect evidence of the influence which the high calory diet might exert on the natural history of typhoid fever. On account of the wide variations in the course of the disease in different seasons, such evidence can be obtained only from the study of a series of cases extending over a number of years.

A statistical study has therefore been undertaken of the course of typhoid fever in patients on the high calory diet and in an equal number of patients on diets (milk, broths, egg albumin water) furnishing not more than from 1,000 to 1,500 calories a day. The number of cases available is not sufficiently large to justify comparison of the frequency of the rarer symptoms and complications, even with respect to the commoner features of the disease, only tentative conclusions are drawn unless the evidence is overwhelming.

Material.—The material consisted of 444 patients, half of them on the high calory diet and the other half on a milk diet. All of the patients were treated on the second medical division of Bellevue Hospital except forty-five of those on the milk diet. The majority of the patients were under my personal care, thus eliminating differences in the course of the disease which might be attributable to different methods of treatment other than diet. The histories cover the years from 1903 to 1914, inclusive. As far as possible, cases in corresponding years have been selected, but the use of the high calory diet became so general throughout the hospital about 1911 that, in order to complete the milk series, it was necessary to utilize 113 histories from 1903 to 1906, inclusive.

The histories were taken from the records seriatim. All patients were classified as high calory cases if the attempt had been made to nourish them liberally, even if it failed or was only partially successful.

A moderate number of histories were unsuitable for analysis, the reasons being doubt as to the diagnosis, entrance into the hospital late in the disease, and death within a week of admission. Of the fatal cases excluded, three were on the high calory diet and twelve on milk. Fifty-five of the high calory cases were mild, 149 were severe, and eighteen were fatal. Forty-four of the milk cases were mild, 104 were severe, and thirty-nine were fatal.

Duration of the Disease.—There is no evidence to indicate that the duration of the febrile period of the disease or the range of temperature is affected by diet except, perhaps, that long recrudescences are rarer in patients who are well nourished.

The total duration of the disease, however, is shortened, in some instances, by months. That is, the long convalescences, formerly so common, have not been observed. The records with respect to convalescence are by no means complete, but a number of patients have reported back to the hospital from time to time. All of them have stated that they felt perfectly well and were physically able to follow their occupations (many of the patients were laborers) even within a short time after their discharge.

Condition of the Mouth.—While it is recognized that the condition of the mouth, including the tongue, in typhoid fever is dependent on the amount of attention bestowed on it by the nurse, it may be stated that the mental condition of patients who are well nourished is so good that they themselves keep their mouths clean. The only histories containing notes to the effect that the lips and tongue were in poor condition were found in the milk group.

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* Read before the Section on Practice of Medicine at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

[1] For the bibliography of the papers by Drs. Shaffer and Du Bois, Mr. Gephart, and the author see Arch. Int. Med. August, 1914, p. 163; [illegible] 191[illegible] pp [illegible]

Nausea and Vomiting—Nausea and vomiting occurred in 19 3 per cent of the high calory cases and in 22 6 per cent of the milk cases The difference is negligible Nausea and vomiting were more frequent among the earlier high calory cases when the diet was limited to milk, cream, lactose, and eggs, these symptoms became less common as other articles of food were added to the diet Nausea and vomiting did not always coexist in the same patient Lactose at times caused vomiting without nausea Most often nausea and vomiting followed attempts to increase the food too rapidly or when the food mixtures were too rich Some patients vomited the high calory diet and milk indifferently A few patients had persistent and uncontrollable vomiting due either to recent excesses in alcohol or to the disease per se

Tympanites and Diarrhea—Though often associated, these did not always occur together Tympanites occurred in 17 6 per cent of the high calory cases and in 31 5 per cent of those on milk Extreme grades of tympanites were rarely observed among the high calory cases Diarrhea occurred in 16 2 per cent of the high calory cases and in 48 6 per cent of those on milk Temporary diarrheas of one to several days' duration have been included in the percentage for the high calory cases but not in that for the milk cases

For comparison, the statistics of the Hamburg (2,240), and Leipzig (1,875) cases, as given by Curschmann,[2] may be cited Continuous diarrhea occurred in 36 1 per cent of the cases in the Hamburg epidemic, temporary diarrhea in 29 7 per cent, making a total of 65 8 per cent In the Leipzig cases, continuous diarrhea occurred in 25 6 per cent and transient diarrhea in 37 per cent, with a total of 62 6 per cent Normal stools occurred in 5 2 per cent of the Hamburg cases and in 4 4 per cent of the cases in Leipzig

The practice followed in Bellevue Hospital of giving a daily enema to all typhoid patients has made it impossible to ascertain what proportion of patients would have had spontaneous daily movements of the bowels and what proportion were constipated With respect to the characters of the stools themselves, those from the high calory cases were notable for their normal color and consistence A large proportion of the stools of the milk cases contained undigested milk curds

Tympanites and diarrhea were observed more frequently among the earlier high calory cases After 1911, only nine of these patients suffered from continuous diarrhea Many patients entering the hospital with profuse diarrhea developed normal stools in the course of several days under the influence of the high calory diet

Gradually it was learned that, except in a few patients, tympanites and diarrhea are due to an excess in the diet of one or another of the foodstuffs Tympanites most frequently results from an excess of lactose, diarrhea most often from an excess of cream Occasionally, the opposite was true In one instance, tympanites disappeared when eggs were discontinued Patients who at first were unable to take the desired amount of food usually could be educated to do so by graduating the increase In the last few years, it has been found possible to control tympanites and diarrhea, in practically all instances, by rearrangement of the diet In rare cases, tympanites and diarrhea always followed the attempt to increase the food beyond 1,000 to 1,500 calories, in spite of frequent alteration of the proportions of protein, fat, and carbohydrate

Reference may be made in this connection to Torrey's[3] study of the intestinal flora of some of the high calory cases of this series and of other cases on a milk diet Torrey found that patients who were able to take large amounts of food without digestive disturbances possessed a flora dominated by the *Bacillus acidophilus,* and that patients with an initial putrefactive flora were capable of developing a favorable fermentative flora, with disappearance of tympanites or diarrhea, under the influence of the diet Exceptionally, the putrefactive type of flora persisted in spite of alteration of the diet—these were the patients who could not be liberally nourished The therapeutic application of these results was at once apparent and at my request Dr Torrey prepared a pure culture of *Bacillus acidophilus* for administration to typhoid patients The bacillus was used first for patients entering the hospital with tympanites and diarrhea in order to hasten the transformation of the flora, later it was given more or less as a routine measure The results have been satisfactory

Through the investigations of Torrey, and of Hull and Rettger,[4] it is now known that the beneficial influence of the high calory diet on the intestinal flora is due to its lactose content

When tympanites and diarrhea occur in typhoid fever (except perhaps in the prodromal stage for which we possess no data), they are the result of an unfavorable flora, which, in nearly all instances, is in turn dependent on an unsuitable diet Tympanites and diarrhea, therefore, are not due to the specific action of the typhoid bacillus and should not be considered as essential symptoms of the disease

Nervous Symptoms—Three and six-tenths per cent of the high calory cases were described in the histories as stuporous, restless, or toxic, as compared with 10 81 per cent of the milk cases, 7 65 per cent of the high calory cases were delirious throughout the greater part of the active period of the disease, 13 5 per cent of the cases were delirious for one to several nights Some of the patients with prolonged delirium, though nominally high calory cases, took very little food In some instances the delirium followed intestinal hemorrhage

Thirty-eight and three-tenths per cent of the milk patients had well-marked delirium (20 7 per cent of them sank into the typhoid state) while 3 60 per cent were mildly delirious

Twenty-one of the high calory cases that entered the hospital in a delirious condition, or the typhoid state, gradually cleared as the food was increased Occasionally patients taking large amounts of food became delirious for short periods None of the high calory patients who received the desired quantity of food developed the typhoid state In eight of the fatal cases with severe nervous symptoms, the patients took less food than they required, for the most part under 2,000 calories a day

The practically complete absence of severe nervous symptoms in patients who were able to take sufficient food and the disappearance of these symptoms with improvement in the patient's nutrition, warrant the conclusion that severe nervous disturbances, including the typhoid state, occur in typhoid fever only when the patients are undernourished In other words, severe nervous disturbances are not due to the specific action of the typhoid bacillus, but rather to the action of the bacillus in the presence of partial starvation The well known fact that the typhoid state is not peculiar to typhoid fever lends support to this view

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[2] Curschmann in Nothnagel's Encyclopedia of Practical Medicine, volume on typhoid and typhus fevers.

[3] Torrey Jour Infect Dis, 1915, 15, 72

[4] Hull and Rettger Jour Bacteriol, 1917, 2, 47

The foregoing conclusions should not be interpreted to mean that typhoid patients even when well nourished, may not develop delirium Some persons become delirious whenever the temperature reaches a certain height irrespective of the cause of the fever

Body Weight—Loss of weight in typhoid fever was formerly so constant that it was considered a characteristic phenomenon of the disease While the records of the patients in the milk series contain no reference to weight (the method of weighing patients had not then been devised), it can scarcely be doubted that all of them lost more or less in weight and in general, the severer the fever, the greater was the loss

A large number of the patients in the high calory group were frequently weighed The majority of them lost some weight during the active period of the disease, usually only a few pounds The emaciation which was so common among the milk cases did not occur if the patients took reasonably large amounts of food In a few instances, there was a gain in weight, even at the height of the fever or during a relapse In all cases, as the appetite improved and the quantity of food was increased the lost weight was regained in the later stages of the fever or early in convalescence In other words, loss of weight is not a symptom of typhoid fever but an indication that the patient is receiving insufficient food

Complications—As stated above, the number of cases in this series is not sufficiently large for comparisons of the rarer complications in the two groups to possess much value Yet in some instances the results are striking

There were a total of 110 complications in eighty-one of the high calory cases and 144 complications in ninety-one of the milk cases

Intestinal Hemorrhage—This occurred in 9 45 per cent of the high calory cases The hemorrhage was moderate in 5 40 per cent and severe in 4 05 per cent of the cases

Among the milk cases, moderate hemorrhage occurred in 5 40 per cent , severe hemorrhage in 9 per cent making a total of 14 40 per cent

The difference in the incidence of hemorrhage in the two groups is too small to possess much significance, yet closer analysis brings out an important difference in the mortality from hemorrhage

Twenty-one of the high calory cases were complicated by hemorrhage Two of the patients died, one from hemorrhage alone, one from hemorrhage, pneumonia and cholecystitis, giving a mortality from hemorrhage of 9 5 per cent

Hemorrhage occurred in thirty-two of the milk cases There were nine deaths, six from hemorrhage alone (18 7 per cent), and three from hemorrhage with other complications (9 4 per cent) The total mortality from hemorrhage among the milk cases was 28 1 per cent

The frequency of intestinal hemorrhage, according to Curschmann, varies from 4 to 6 per cent The mortality among cases with hemorrhage varies from 20 to 44 per cent.

In both groups of the present series, therefore, the incidence of intestinal hemorrhage is greater than usual but the mortality from hemorrhage appears to have been lowered by the high calory diet

With respect to the individual patient, intestinal hemorrhage seems to cause but little, if any more disturbance when the patient is well nourished, than the loss of an equal amount of blood by a healthy man Occasionally a patient became delirious after a hemorrhage One patient recovered after the loss of two quarts (estimated) of blood

Perforation—This occurred in two of the high calory cases (0 9 per cent), and in seven of the milk cases (3 15 per cent) The average incidence of perforation is placed at from 2 to 3 per cent One of the high calory patients with perforation died Six of the milk patients with perforation died, namely, 85 7 per cent Tentatively, the conclusion may be drawn that the high calory diet lessens the liability to perforation

Recrudescences and Relapses—Recrudescences occurred in 6 75 per cent of the high calory cases and in 11 3 per cent of those patients on a milk diet

Relapses occurred in 18 per cent of the high calory cases and in 14 9 per cent of the milk cases

From these figures it is probable that diet is without influence on the frequency of recrudescences and relapses Prolonged recrudescences, however, are apparently less common and relapses are better borne by patients who are well nourished

Mortality—Death occurred in 8 10 per cent of the high calory cases and in 17 6 per cent of the milk cases This does not, however, express *fairly* the reduction in the mortality rate among the high calory cases which includes all deaths (except three who died within a week of admission to hospital) irrespective of circumstances which may have determined the fatal issue Seven of the eighteen fatal high calory patients were unable, for one reason or another, to take the amount of food they required, thus, one had been on a ten day debauch, one vomited practically everything which was given him, one had status lymphaticus, one had been in the hospital for many weeks with abscess of the prostate before developing typhoid Another of the fatal cases developed diphtheria If we deduct these eight cases from the total, there remain ten deaths which are justly chargeable to the high calory group This gives a mortality rate of 4 50 per cent as compared with 17 6 per cent for the patients on the milk diet

Clinical Picture—The statistical evidence which I have cited conveys but an imperfect impression of the profound changes which the high calory diet brings about in the natural history of typhoid fever

While there is, obviously, considerable variation in the course of the disease in different patients, the most striking change in the clinical picture is the practical absence of severe, and, in many cases, of all nervous phenomena The patients lie in easy positions in bed, such as a healthy man assumes while resting The severer cases may be somnolent, at intervals flighty, but they are easily aroused When awake they are alert, their eyes are bright, their facial expressions are natural The patients lose very little weight and a casual inspection of them gives no hint of the nature or severity of the illness Many patients read the daily papers and magazines while still running high temperatures At meal times they turn on their sides, often propping themselves on their elbows, and eat from well filled trays without assistance from the nurse

If this picture is contrasted with that of the severely toxic, half starved patient, with hollow cheeks, listless expression, staring eyes, and restless, emaciated forms, it is difficult to believe that they portray the same disease

Influence of High Calory Diet on Treatment—The use of the high calory diet has greatly simplified the treatment of typhoid fever The amount of "nursing" is reduced to a minimum While the preparation of the food undoubtedly demands more time than the administration of a glass of milk every two hours, this additional attention is more than counterbalanced in other directions The use of drugs has been almost eliminated

Every patient receives a saline or soap-suds enema in the morning and, as a rule, the bowels require no further attention during the day If tympanites or diarrhea should develop, it indicates that the diet is improperly arranged and relief is obtained through alteration in the proportions of the foodstuffs

No attempt whatever is made to control the fever High temperature is believed to be a potential danger only when patients take insufficient food Antipyretic drugs are considered dangerous, hydrotherapy, unnecessary A cleansing bath is given every morning and, if alcohol "sponges" make the patient more comfortable, he receives one or more a day In my opinion, hydrotherapy owes whatever value it possesses to reduction in total metabolism and not, as has so often been stated, to stimulation of the nervous system If the increase in total metabolism can be covered by food, the cold bath loses its purpose

In the absence of delirium, patients do not require constant watching to prevent them from getting out of bed and perhaps out of the window They are not incontinent of feces and urine, with the consequent frequent changes of the clothing and bed The tendency to bed sores is thereby lessened

Fewer patients require cardiac stimulants, though I frequently give strychnin toward the end of the fever, or during convalescence, to restore tone to the musculature of the heart and blood vessels

SUMMARY

A comparative study of 222 cases of typhoid fever on the high calory diet and of an equal number of cases on a milk diet has brought out the fact that the natural history of the disease, as it has previously been known, is profoundly altered by the maintenance of an optimal state of nutrition The range of temperature apparently is not affected, but the total duration of the disease is shortened, in some instances by months, through the shortening of convalescence Certain symptoms which hitherto have been attributed to the specific action of the typhoid bacillus have been discovered to be due to faulty methods of treatment, in particular, to an inadequate or improperly balanced diet Complications are rendered less formidable, and perhaps less frequent, by maintaining the patient in the best possible state of nutrition Moreover, the mortality from the disease is reduced by from 50 to 75 per cent

58 West Fifty-Fifth Street

ABSTRACT OF DISCUSSION

Dr E F Du Bois, New York It has been my privilege to be associated with Dr Coleman for seven years, and I have been able to see almost all of the typhoid patients he has treated during this time One cannot help being markedly impressed by the change in typhoid fever as brought about by the Coleman-Schaffer diet The picture of the patient is changed completely, the typhoid state is seldom seen, extreme apathy is rare, patients require comparatively little attention Baths do not seem to be necessary Medication in typhoid fever seems to be almost a thing of the past As to mortality, the statistics speak for themselves The general clinical impression of all who have seen a large number of typhoid patients fed on this diet is that the patients are infinitely more comfortable There is still room for discussion as to the exact number of calories needed by the typhoid patient The actual number of calories produced by the patient's own body amounts to some 2,000 calories a day The question is whether one should be satisfied in giving that amount, or should give more If one wishes to keep the patient in nitrogen balance one must give about 4,000 calories, but that requires special training on the part of the nurse Good trained nurses can administer 3,000, but most nurses have difficulty in giving 2,000 calories At least 3,000 should be given, if possible. Most of the poor results are found in patients who have not been able to take 1,500 calories a day

I think every one here must have been struck by the contrast between the subjects of the last two papers, that is, diabetes and typhoid fever In diabetes Dr Allen and Dr Joslin have shown the necessity of keeping the calories as low as possible, in typhoid fever Dr Coleman and Dr Schaffer have shown the necessity of keeping the calories as high as possible. In modern medicine it is necessary to know the amount of calories in a patient's diet.

Dr Dudley Roberts, Brooklyn About four years ago my interest in Dr Coleman's work led to an examination of his patients in Bellevue Hospital At that time I was struck with three things (1) his patients did not look as if they had typhoid fever at all, (2) there was a slight fullness of the abdomen in practically all cases, and (3) there were some difficulties in carrying out the high caloric feeding in private or even hospital practice Since that time we have had about 100 cases in the wards of the Brooklyn Hospital and these impressions have all been confirmed When the patient is properly nourished, typhoid fever presents an entirely different picture from the classic one I have about come to the conclusion that what we have known as typhoid fever is largely the picture of starvation Slight fullness of the abdomen is usually present and need cause no anxiety The difficulty of using the high caloric diet we have solved to our satisfaction by the use of food formulas of definite caloric value per given measure, and by insisting that the caloric intake of the patient be known from hour to hour through proper charting

It is to be feared that Dr Coleman's work will be damned by too faint praise We are not dealing with a little more liberality, but with a definite attempt to supply the bodily needs of the patient An uncorrected mortality of 5 per cent in our series and no deaths in cases in which high caloric feeding was actually put in practice, make a striking contrast to previous mortality percentages Fully as important is the amazingly rapid convalescence This is a monumental work that Dr Coleman has done, and the plan of treatment should become the generally accepted practice

Dr C H Breidenbach, Dayton Much opposition prevails, and always will, to radical departures from long established practice I want to supplement Dr Coleman's work with a report of 137 patients with typhoid fever on high caloric diet

If we take home Dr Coleman's message, we will benefit by attendance on these sessions Some forceful character must arouse us from our lethargy Here is a preventable disease, exacting, in this country, a toll of 35,000 lives annually—an economic loss of thirty billions in ten years We have sought too eagerly the spectacular, mysterious and unexplored

Of our series, seventy-six cases were treated by the high calory diet method from the onset The results in these cases were gratifying and convincing The entire aspect of the disease was changed Noteworthy facts were as follows absence, or only the slightest suggestion, of the terrifying, distressing, exhausting delirium and the ghastly emaciation which constituted the typhoid picture of the past, 32 patients lost less than 5 per cent in weight, 20 maintained normal weight, 24 gained from 3 to 5 per cent, 1 died of intestinal hemorrhage

Sixty-one patients came under observation after the disease had made considerable progress These patients responded promptly to high calory feeding delirium began to subside, pulse improved temperature declined, the benefits of feeding were manifest within forty-eight hours

Our routine treatment of typhoid will not be regarded as ultrascientific, it is, however, pregnant with gratifying results, although dubbed the C O D treatment—castor oil, opium and diet Castor oil every other day will prevent the distention complained of by Dr Coleman and is less likely to provoke hemorrhage and perforation than most of us fear For delirium opium to the point of narcotism if required to end the coma vigil, tremor, twitching, etc Narcotism of short duration will restore reason, improve pulse and reduce temperature. One patient died manifesting perforation Necropsy revealed a thrombosed superior mesenteric artery with necrosis of sections of the small intestine

Our mortality of 2 per cent could not be maintained on this or any other treatment but it is significant Our policy is, hands off! No meddlesome treatment allowing temperatures to run wild, 107 F is the peak when this is reached (and it usually is in from three to five days) the hour of improvement has been marked The next morning remission will be startling and gratifying adding weight to Vaughan's suggestion that In acute infections, high temperatures are perhaps beneficent in that they may favor the formation of antibodies

These cases extended over the past three years We are so well satisfied with results that until we have a more comprehensive konwledge of the pathologic chemistry of this and other acute infections, we shall not starve our patients interfere with temperatures deny them refreshing sleep, or rob them of 'Granny s' ever pleasant physic, castor oil

Dr. Max Einhorn New York I rise to substantiate the great value of Dr Coleman s work in typhoid fever I had some experience in this line in the German hospital for quite a number of years I was always in favor of feeding the patients quite well, but I was of the opinion that the diet should be a liquid one and gave the patients milk and raw eggs, but later when I became acquainted with Dr Coleman s work, I started in with the same methods, and in the hospital all my patients were treated according to his methods, with excellent results I do not want to say that symptoms, with somnolence in typhoid fever are all due to starvation, but I will say that in a patient who is well nourished these symptoms are reduced A weak patient will become delirious from the toxin of fever, while the well nourished patient will have the same amount of toxins but with a high diet will not show so many symptoms While it is not starvation alone that develops these severe phenomena, the symptoms due to the toxins can be greatly reduced by sufficiently raising the standard of nutrition in the body I think you will find in Leyden s book on dietotherapy that many years ago the problem was raised whether, in typhoid fever in which there is a great expenditure of heat, more so than in health (while a normal healthy person expends 2,400 calories a day, a typhoid fever patient will expend 3 000 to 4,000 calories), it was possible to give enough heat to the body so that the expenditure should be balanced This was not definitely answered until Dr Coleman took it up and showed that it was possible to replace the entire amount of calories in typhoid fever when there was a severe disease in the intestines and high fever Even here the body can be supplied with adequate nutrition, and that is a great advance for which we should congratulate Dr Coleman

Dr. E. P Joslin, Boston Overfeeding during an infectious disease would seem to be an ideal method by which to produce diabetes I have seen no such case during recent years, but I am sure Dr Coleman has some information on this point. There is, as we all know, a strong feeling among many physicians that infectious diseases are closely connected with the etiology of diabetes

Dr. A. E Roussel Philadelphia I feel that I should offer some few points of criticism I wish to report that I have treated over 260 consecutive cases of typhoid fever at the Howard Hospital, 213 of these patients were treated on the modified diet—neither the milk diet nor the Coleman diet On forty-nine of them I tried the Coleman diet It may be that I was not sufficiently enthusiastic in carrying out the Coleman diet in these cases The number of intestinal hemorrhages was large in the cases on full diet, the abdominal distention was more marked, and diarrhea was more universally present Now, personally, as a teacher, I believe that probably the truth lies between these two extremes But no matter what the diet today, the question of leaving temperatures of 107 alone is absurd and dangerous in the extreme I would not care to treat that way I repeat the fact that under the modified diet my mortality was 4 and a fraction of 1 per cent, my mortality on the Coleman diet was over 8 per cent It is possible that I may not have applied it as well as Dr Coleman, but it is not difficult to carry out, and I followed his directions carefully I want to say that we should not be carried away by too much enthusiasm The intensity of typhoid fever is not as great as it was formerly, with a mortality of about 18 per cent I think that hydrotherapy, which is bound to stay, has done much to modify its virulence It appears to me that the cases that I see in consultation in the country and smaller towns are of a more severe type than those in the city For example, I have knowledge of some cases that originated at a sea shore hotel with a mortality of 100 per cent This is a degree of virulence that seems to be beyond any form of treatment *In medio tutissimus ibis* I think we should not go to extremes one way or the other

Dr. H A Christian Boston Dr Roussel has touched on one important point in the consideration of statistics in acute infectious diseases and that is the importance of recognizing that from year to year there is a variation in the curve of mortality Therefore we must not compare the results of treatment of typhoids or pneumonias of one year with those of another year without making allowance for that variation I did not catch in Dr Coleman's paper whether the statistics of the patients on the high calory and low calory diets represent patients in the same or different years If they represent patients in different years, allowance must be made for variations in the severity of the disease I think it is important to make that clear Alternate cases in a given hospital treated, one case in one way and another case in another way, will give more valuable data than taking cases in one year to compare with those in another

Typhoid fever has changed, as I have seen it in the last five to seven years Typhoid that is described in the textbooks, typhoid that our students read about cannot be illustrated at present by the typhoid patients we have in the wards We have to say to our students that this will impress you of the typhoid you have read about in the books because it is so different Whether that is due to the feeble virulence of the organism, or to our treatment, is an important thing to know I have carried out the Coleman treatment in my cases The results have been satisfactory, but being skeptical I wonder how much is due to the Providence that determines the pathogenicity of the organism, and how much to our treatment of the disease

Dr. Warren Coleman, New York In regard to the question of Dr Joslin, of diabetes and typhoid, in practically the whole series of cases, sugar was present in the urine of only one patient. Of course the urine was not examined every day in all the high calory cases, but I think diabetes could not have been present without our having discovered it In the case I am speaking of, it was glycosuria, as far as is known, none of the patients developed diabetes during convalescence The important fact with regard to the patient who had glycosuria was that his sugar tolerance increased at the same time that we increased the carbohydrate intake. That was one of the cases we studied very carefully The patient was put on the Benedict respiration machine every other day for a long period, so that we knew exactly what was going on with respect to his metabolism, and the sugar tolerance increased in spite of the fact that the carbohydrate intake was raised One point with regard to Dr Roussel's remarks is that the more experience I have had, the more important it appears to individualize the feeding All patients cannot be fed by rule of thumb It is an individual question entirely Also, if the patient's intestinal flora is of the putrefactive type at the beginning, it will take longer to raise his tolerance for the feeding than if he had a favorable fermentative flora In some cases one can greatly increase the milk sugar and in others not. It is necessary to find out the kind of food the patient requires With relation to the question of years of the cases in the two groups, raised by Dr Christian, that is in the paper, I omitted it because I did not wish to take up too much time As far as possible, the cases were selected in corresponding years I think the fact that the cases cover a period of ten years to some extent counterbalances the defects in this respect.

THE INFLUENCE OF LABOR ON THE BRAIN DEVELOPMENT OF THE CHILD *

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The possession of a healthy mind in a healthy body is the first and indispensable condition for survival in the struggle for existence In view of the far-reaching and disastrous results of mental enfeeblement in the individual, the home and the community, it becomes the duty of the physician to investigate all possible sources of intellectual deficiency and to eliminate all etiologic factors amenable to control The idiot by heredity, the victim of congenital variation of germ plasm or of embryonic insufficiency of internal secretions, whose brain anomaly dates back to early intra-uterine life, is beyond our help except to the extent that we may benefit him by glandular therapy and educational methods

Conditions are altogether different in the case of a healthy, well developed child that has traveled safely through the months of fetal evolution and reached the journey's end only to be wrecked during the process of his entry into the world

Preventable traumatism to the skull and its contents is the subject to be considered in this paper The rescue of even a single human being from feeblemindedness incurred through injury at birth is such an important matter that it has occupied my mind for years, ever since in my student days I witnessed an almost incredibly long protracted labor, culminating at last in the spontaneous delivery of a living child While practically free from external blemishes, it was almost a foregone conclusion that this infantile skull harbored a bruised and congested brain, with hemorrhagic areas and extensive destruction of nerve cells which would in turn lead to arrested brain development and feeblemindedness

Instrumental delivery, more particularly by the obstetric forceps, has often been accused of being the cause of birth traumatism, and has undoubtedly caused serious mutilations in the hands of the unskilled, but its action can never be so prolonged or profound as the molding of the soft cranial bones in very narrow or otherwise obstructed pelvic passages

INJURY TO BRAIN IN DIFFICULT LABOR

Unduly prolonged or otherwise abnormal deliveries may damage the child's brain through three mechanisms (1) direct contusion of the brain substance, (2) local congestion and rupture of intracranial vessels by the overriding parietal bones, and (3) general congestion of the venous system caused by an obstruction of the fetal circulation and resulting in capillary rather than in diffuse meningeal hemorrhages

Prolonged general compression of the child's skull in the birth-passages in difficult unassisted labors is one of the causes of displacement of the cranial bones and a resulting circulatory disturbance in the venous sinuses, according to Kundrat[1] In a paper on Wormian bones in fontanels and their effect on childbirth, Dr Grace Peckham Murray[2] called attention to the possibility of obstetric damage to the infantile cranial contents during the second stage of labor as the time of greatest pressure Based on personal experience in three lengthy labors with three stillbirths, she points out the detrimental influence on the child in consequence of the unduly prolonged labor ("Instruments were not used in either instance, as there was a constant expectation that the labors would terminate naturally")

If the damage to the brain and nerve centers may be sufficient to destroy life, as in the three cases reported by this observer, it is not unreasonable to assume that other infants may survive with irreparably damaged brains The question also arises whether these Wormian bones in fontanels, especially in the posterior fontanel, by preventing the overlapping of the sutures and normal molding of the child's head, may not contribute their share to the exposure of well developed infants to the danger of idiocy and imbecility through the prolonged compression of the skull in the birth passages

It is a pity that surviving children born after unaided but unduly prolonged labors have never been systematically studied in their primary school work and later mental development Equally regrettable is the lack of reliable information regarding the birth conditions of the children in institutions for the feebleminded As a rule, there is at best a bald statement to the effect that the birth was natural, without comments on the duration of the labor, or that it was terminated by instrumental delivery, which is often held responsible for the feeblemindedness In this manner a prejudice unwarranted by the actual facts is created against the obstetric forceps Goddard[3] states, however, that "since many normal children are delivered by the use of instruments with more or less temporary deformity to the head but without any effect on the mentality, it is unreasonable to conclude in those cases where there is both hereditary feeblemindedness and a history of instrumental delivery that the latter is the cause of the mental deficiency"

Obstetric clinics, at least so far as I have been able to ascertain, keep no notes on this subject, and I have therefore endeavored to collect some data from institutions for feebleminded children I am well aware of the imperfections of these brief statistics, and I offer my figures chiefly in the hope that they may serve to stimulate a needed interest and invite a better study of the subject both in obstetric clinics and in homes for the feebleminded

A study of causes of mental defect, active at time of birth in 5,000 cases (from the Pennsylvania Training School for Feeble-Minded Children at Elwyn, Pa), shows the following results instrumental deli-

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* Read before the joint meeting of the Section on Obstetrics, Gynecology and Abdominal Surgery and the Section on Nervous and Mental Diseases at the Sixty Eighth Annual Session of the American Medical Association, New York, June, 1917

[1] Kundrat Ueber die intermeningealen Blutungen Neugeborener Wien klin Wchnschr, 1890, 3, 887

[2] Peckham G Wormian Bones in Fontanelles and Their Effect in Childbirth, Med Rec, New York, 1888, 33, 412

[3] Goddard Feeblemindedness, Its Causes and Consequences New York, 1914, 447

ery, 134 cases (2 68 per cent), and difficult and prolonged labor, but without instruments, seventy-five cases (1 50 per cent)

In a total of 562 cases recorded at the training school for mentally abnormal children at Vineland N J, the history of an unusually difficult or extremely prolonged labor (up to three days) appears 125 times Special mention is sometimes made of a very large infantile head or one detained for an abnormally long time in the birth passages Careful investigation of the records results in the discovery that in fifty-four of these protracted births no instruments were employed which is equivalent to saying that no artificial assistance of any kind was rendered A systematic review of the clinical material in the asylums on Randall's Island was undertaken in the expectation ot securing valuable data for the establishment of the claims made in this paper Unfortunately, incompletely kept records yielded only meager results

It appears that on Randall's Island, for example, the first attempts at record-keeping date back less than two years, namely, to August, 1915 Altogether 1,800 histories were investigated, but comparatively few furnished any information on this point, 228 cases recorded since August, 1915, contain no account of the conditions at birth, forty-one case records state that pregnancy and birth were normal, the mental disturbance developing in later childhood as the result of traumatism or infectious disease Of 308 records which contained statements as to the conditions at the time of birth, eighty-one showed these conditions to have been unfavorable in a variety of ways Unduly prolonged and difficult noninstrumental deliveries were noted in thirty-four instances

Some cases taken at random are as follows Labor occurred at term in a primipara, aged 22 years, and lasted three days, the child was born in convulsions and grew up to a life of feeblemindedness Another inmate, a low grade moron idiot, was born after an unassisted labor lasting forty-eight hours Another child classed as an imbecile is stated as having been born after a very difficult labor in which neither instruments nor chloroform were used Three cranial operations were performed without benefit and the record adds that they probably did harm

It is evident that these meager statistics hardly permit one to draw any conclusions They certainly show that in an appreciable number of cases long delivery did play a part in the birth of the future defective I feel justified in saying that in more carefully kept records we might find a surprisingly large percentage of feeblemindedness due to this cause

PROTRACTED LABOR AND THE OBSTETRIC FORCEPS

Dührssen and his pupil Küntzel,[4] the only obstetricians who ever took up this subject, claim that an unduly prolonged and difficult birth exerts a far more injurious influence on the child's brain than the skilled application of forceps Among 450 idiot children, four mental defectives (0 9 per cent), were found whose idiocy was attributed to instrumental traumatism as compared to a much greater number of difficult unassisted deliveries with twenty-three cases of idiocy Furthermore, in Küntzel's[4] compilation there are twenty difficult births with artificial aid, that is 4 5 per cent as compared to 0 9 per cent of idiots brought into the world by means of instruments Evidently obstetric operations cannot in a general way be accused as causative factors in the production of idiocy, and the application of forceps is decidedly preferable to protracted parturition with its serious danger to the mental integrity of the child

Whereas the obstetric literature is remarkably poor in material dealing with this important subject, a systematic review of the neurologic literature reveals a startling array of illustrative cases which in the aggregate bear eloquent witness to the necessity of bringing the truth to the attention of obstetricians Neurologists who have investigated the relation between birth disturbances and epilepsy, for example, are induced to believe that traumatism during the act of parturition predisposes the child's brain to the development of epileptic processes, and that birth disturbances must be held responsible as preparatory causes ot epilepsy in a number of the cases

In the Bicetre Institute in Paris, the parents of the idiotic, epileptic, and paralytic inmates are carefully interrogated in all respects with a possible bearing on the condition of the child including all the details of delivery, especially as to its length and difficulty The example could be advantageously followed by our own hospitals Tissier's[5] statistics of mentally abnormal children in this institution comprise altogether 900 cases, in 550 of which the patients were living at the time of the report, the remaining 350 cases concerned patients who had died in the same hospital since 1883 Of seventy-six idiotic children, eighteen were born asphyxiated after difficult labors, and eighteen were born after difficult labors, but not asphyxiated

Shuttleworth and Potts,[6] on the basis of experience with 2,380 mentally deficient children observed at the Royal Albert and Darenth Asylum, say

> Among causes acting at birth that to which undoubtedly most importance attaches is prolonged parturition It has been alleged that the use of forceps is accountable for a considerable amount of cerebral injury and consequent mental impairment So far from this being the case it would appear from the statistics [of Shuttleworth and Fletcher Beach] that protracted pressure without instrumental interference is a much more potent cause both of mental and nervous defect It is unquestionable that the asphyxia neonatorum, so often due to protracted unassisted labor, is in some cases followed by birth palsies and enfeeblement more or less severe of the intellectual powers It is probably accountable for not a few of the milder types of mental feebleness

The words of Currier[7] must be quoted in this connection

> A large head in a small pelvis or even a normal head in a nearly normal pelvis may be retained so long that the brain will be dangerously compressed This is not an infrequent occurrence when the uterine contractions are indefinitely suspended in connection with the uterine inertia Such cases were far more frequent in the past than now, the labor being allowed to continue for days rather than interfere with what were supposed to be the legitimate efforts of nature A skull which has been compressed by such prolonged incarceration may resume its proper contour after a longer or briefer period of time and give no outward evidence of injury, but it is quite probable that if the sensitive brain has undergone compression to a considerable degree for many hours, the result will be disastrous to the child, imbecility or idiocy being the consequence. Of course the effects of this injury may not

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[4] Küntzel Ueber den Einfluss geburtshulflicher Operationen auf die geistige Entwicklung der Kinder Inaug Diss Berlin 1891

[5] Tissier P De l influence de l accouchement anormal sur le développement des troubles cérébraux de l enfant, These de Paris 1899

[6] Shuttleworth S E and Potts W A Mentally Deficient Children Philadelphia 1910 88

[7] Currier A F Injuries of the Head in the New Born Med News London 1901 79, 161

will admit that the danger of the death of the child is very greatly dependent on the character of the uterine contractions If the contractions are weak, labor may go on for hours and there is no danger to the child's life As a matter of fact, most of the lengthened labors are prolonged in the first stage, the contractions are not strong enough to dilate the cervix. The question is largely a mechanical one

Dr Alfred B Spalding, San Francisco A median episiotomy in my experience does not add to the dangers of complete laceration and does relieve the child from severe head pressure in primiparous labors When there is pressure on the head during the perineal stage of labor, oxygen given to the child via the placenta will cause even asphyxia pallida babies quickly to turn pink and rosy Many children can be saved from injuries due to asphyxia of the cortical centers by giving the mother oxygen under pressure while she is under the influence of an anesthetic

Dr. Samuel J Druskin, New York I have seen a number of cases of fractured skull in prolonged labors with mechanical deliveries Under the use of pituitary extract I have seen in the first twenty-four hours some cyanosis in the child, with a mottled appearance of the skin and an eruption somewhat like urticaria Although these conditions disappear, whether there is a degree of permanent impairment I do not know I have recommended pituitary extract for a number of years It is necessary, however, to call attention to some of these incidents

Dr Hugh T Patrick, Chicago I am glad to know that obstetricians may anticipate these difficult and dangerous labors and thus avoid birth palsies I would emphasize the fact that a large proportion of these palsies occur in first-born That is to say, these are the cases in which investigation of the pelvis and the position of the child is of the greatest importance Another point not yet mentioned is the considerable number of these cases in the prematurely born, that is to say, the child is small and no difficulty is anticipated I presume that in these children the brain and blood vessels are much more delicate and friable than in the full-term child Consequently the greatest care should be exercised by the obstetrician I would also suggest that the obstetrician thoroughly examine the child a few weeks after birth I do not know how many times I have heard my obstetric friends congratulate themselves and each other after a difficult obstetric procedure that they had a living mother and a living child, it never having seemed to occur to them that this living child might be a very defective child Now in the case in which the obstetrician congratulates himself on having brought a living child into the world, he should watch that child, or, what is perhaps better, get a competent neurologist to do it He should be the first to discover the bad effects of the delivery If, as has been said by one of the leading obstetricians here, occasionally the best of them lose a child, what is a fair proportion between the dead babies and the injured heads of the living babies? I do not know, I presume nobody knows I should say, however, that for every dead child an obstetrician gets, he gets three with an injured brain These are the children he ought to know about before the labor begins Idiocy or imbecility without paralysis is very rarely due to birth injury

Dr M Allen Starr, New York Like Dr Patrick, I have been defending obstetricians all my life and trying to relieve them of the responsibilities of these idiocies and palsies I would call attention to the fact not brought out that in an analysis of 100 necropsies on idiots, only from 19 to 20 per
cent were really due to hemorrhage in the brain There are
defective conditions of development in the brai enceph-
alia, atrophy, and various conditions covering it of
the cases of idiocy Therefore, it seems to m
not in this large number of cases blame the ob d
that we can relieve the self-reproach of the mot
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dition of the child is not due to her contracted
that is a psychologic element which should not be ig
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Dr Max Rosenthal, New York It has always see
me that obstetricians might do for this complication
they have done for ophthalmia neonatorum We all know that idiocy and spastic conditions follow birth palsies I do not think we realize, however, how often epilepsy and brain disturbance late in life are the result of a slight injury at birth, a vascular injury occurring perhaps in the silent area of the brain yet which makes itself felt by development of idiocy or of paralysis We must not forget that the brain at birth is in a developmental period A great deal of the cellular and glandular development takes place after birth. Therefore, if injury occurs there it not only jeopardizes what is there, but also the possibility of future development Furthermore, I think that some mention should be made of Dr Cushing's effort to operate for the hemorrhages in birth palsies There are not many cases on record but we should all bear the subject in mind, especially the obstetrician I never see these cases until two or three weeks or a month after injury, when it is too late to consider operation for relief of the clot Obstetricians should realize the possibility of operation in these severe hemorrhages of the new-born

Dr. Adolf Meyer, Baltimore It is obvious from this discussion that if we are to make any progress in the question of the influence of labor on the subsequent mental development of the child, the work will have to be done where there are good obstetric records, early collaboration between obstetrician and neurologist or psychopathologist, and adequate follow-up work My one time teacher, Pinard, showed in a study of heredity how close the obstetrician stands to the family and to the debatable origins of early defects An examination of the children with a record of the various types of birth stress or birth accident shortly after birth and again about the age of four or five or the early school years can alone promise dependable statistics

Dr. P B Salatich, New Orleans We tried operation on the patients with hemorrhage, but so many died that we abandoned the practice In many cases in the first stage of labor one finds the cervix dilated but that the head remains high Should such cases terminate normally there is still so much pressure that hemorrhage is likely to occur If, after vaginal examination, and pressure from above, the head still will not engage, we know that it is either too large or that there is a disproportion between the pelvic brim and the head Cesarean section should be done in such cases I do not think we spend enough time on the careful examination of our patients If all primiparas were examined carefully, and if we found in some cases a diminution of half an inch and advised that about the eighth month something be done, I think we would not have so much trouble at the end of the pregnancy Of course, the patient may wish to continue the pregnancy, with the possibility of the cesarean section Many decry pituitary extract because they do not use it in the right way I now use it when the cervix is slow in dilating, giving 1 or 2 minims When the cervix is dilated I give about 5 minims When the head is down on the perineum and the pituitary extract has lost its effect, I give the patient 8 min-
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ful examination should be made to determine as nearly as possible whether there are any symptoms of brain localization such as paralysis, etc If, therefore, we have a blue baby, one difficult to resuscitate, in which one side of the body seems more helpless than the other, and particularly if there are convulsions why is an exploratory incision not a rational procedure? Make a very small trephine opening slit the dura and raise it up in order to see if there is any hemorrhage

I believe that we ought to pay more attention to such symptoms as I have described in new-born babies and thus endeavor to prevent the subsequent physical, moral and mental defects which such injuries cause.

Several years ago I recommended an operation on a 3-year-old baby which did not develop intellectually or physically It was found at the operation that along the whole side of the skull on the left side there was a regular dent which perhaps might best be described as a greenstick fracture of the skull Under this depression was an immense cyst pressing and flattening the brain Had this baby been carefully examined after birth, this condition would have been recognized and remedied I have no doubt but that there are many other symptoms of hemorrhage which will enable us to recognize it in the new-born and when we are able better to do this why should we not apply the simple surgical principles which we apply to other conditions?

Dr. Henry P Newman San Diego, Calif If this is a criticism of the obstetrician to whom does it apply? To the man trained in his profession? No Unfortunately obstetrics is the privilege of every licentiate in medicine and a large percentage of the births are presided over by the pseudo-obstetrician. Consequently it would be hardly fair to ascribe to the trained professional man such faulty work. But what is the remedy? It is not the question of the use or nonuse of forceps cesarean section, etc It is the personal equation and the individual management of the individual case. The trained obstetrician of today studies the individual case before, during and after delivery and his success or failure is not written in ten days or ten months but by the ultimate welfare of both mother and child

Dr. Arthur Stein, New York Naturally, I fully agree with Dr Brodhead about the molding of the child's head in a contracted pelvis I agree with him also that in these cases the forceps should not be put on unless the head is low down Regarding the use of pituitary extract, I do not agree with Dr Druskin at all Judiciously used it is a great help I do not think that up-to-date obstetricians would like to do without it We made many experiments with pituitary extract at Dr Brodhead's division at Harlem Hospital We standardize the method to some degree, that is, we use as little as possible employing 2 and 3 minims at hour and hour and a half intervals, thus increasing to some degree the physiologic contraction of the uterus With 1 c c. we used to get tetanic contraction I furthermore do not agree with Dr Druskin that the drug has ill effects on the children In the induction of labor at full term we use the small dose.

We are at a great disadvantage in the study of cases coming under the scope of my paper in not having the advice of the neurologist in the cases of babies born in big hospitals These cases are not systematically studied from the neurologic standpoint after long or difficult labors Therefore, I fully agree with Dr Meyer when he says that such studies should be carried out

THE CUTANEOUS MANIFESTATIONS OF HODGKIN'S DISEASE LYMPHOGRANULOMATOSIS *

H N COLE, M D
CLEVELAND

From a careful study of seventy cases and from a review of the literature, Ziegler,[1] in 1911, felt that one fourth of all cases of Hodgkin's disease, at some time or another in the course of their trouble, showed evidence of skin involvement Bunting and Yates[2] quote Westphal as finding 15 per cent of his cases with skin lesions

To me, these percentages seemed rather high until I began to go deeper into the subject and look more particularly for these manifestations After about two years of careful observation of such cases, I feel that these writers are probably correct in their figures It is my belief that all too frequently cutaneous lesions of lymphogranulomatosis are not noted because they have not been sought after, and it is my object to call the attention of the medical profession to this interesting and as yet not generally recognized series of symptoms

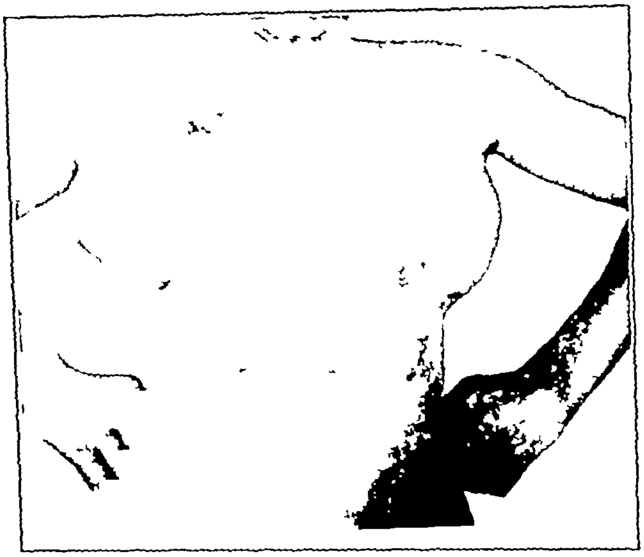

Fig 1 (Case 6) —Prurigo like exanthem in Hodgkin's disease, note enlarged glands

Osler defines this disease, first described by Hodgkin in 1832, as a "condition characterized by enlargement of the lymph-glands with progressive anemia and a fatal termination Anatomically, there is an increase in the adenoid tissue of the glands, proliferation of the endothelial cells, formation of mononuclear and multinuclear giant cells, the presence of eosinophils and thickening of the fibrous reticulum"

The cutaneous symptoms of Hodgkin's disease may either precede, accompany or follow after general manifestations Ziegler says that in from 5 to 12 per cent of the cases, the cutaneous symptoms came first Westphal[3] says that in about 10 per cent of his cases a lichen-like eruption preceded the onset Again, the skin lesions may accompany the generalized symptoms or what is probably the most common type, they follow other signs of the systemic condition — it may be even one to two years afterward and sometimes longer

And what, it may be asked, are the symptoms noted? Probably the commonest of these is a pruritus of greater or lesser intensity It is quite often the first sign to call the patient's or the physician's attention to the condition It is sometimes so intense that I have seen large, deep grooves in the skin marking the imprint of each finger-nail, again, there may be a pruritus with absolutely nothing to be found on the skin It was noted eight times in our series of thirty-four cases, and by Zeigler eight times in his series of seventy cases

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* Read before the Section on Dermatology at the Sixty Eighth Annual Session of the American Medical Association New York June 1917

* From the Departments of Dermatology and Syphilis and of Pathology of the Western Reserve University and of the Cleveland City and Lakeside Hospitals

* Owing to lack of space this article has been abbreviated in The Journal by omission of some of the pictures The complete article will appear in the transactions of the section and in the author's reprints.

[1] Ziegler, Kurt Die Hodgkinsche Krankheit Jena, Gustav Fischer, 1911 This contains a complete review of the literature

[2] Bunting and Yates Bull. Johns Hopkins Hosp April 1917, p 151 November 1915 p 315

[3] Westphal quoted by Bunting and Yates Bull. Johns Hopkins Hosp April 1917 p 151

Marani[4] says that he always notes a close relationship between pruritus and an eosinophilia I have been unable to corroborate it, finding that these attacks generally come with a fresh glandular "flare-up"

In my opinion the next commonest lesion is a prurigo-like exanthem These papular lesions, capped often with vesicles which are soon torn off by the scratching, are most often found on the extensor surfaces, but may be all over the body in a severe case There are always more or less accompanying excoriations, scars and pigmentations Often these lesions come and go for months In Blaschko's[5] case they disappeared when the throat lymphomas were removed, only to return later with recurrence of the latter

Wechselmann,[6] Nicolau[7] and others also report a diffuse exfoliating erythrodermia, though this is rather rare

Urticaria has been seen in many cases of Hodgkin's disease Kreibisch[8] reports a generalized case preceding other evidence of the disease six months

Edematous swellings also are noted, and may be permanent or transitory in character Pigmentations are seen frequently in lymphogranulomatosis, and are either *spotted* or *diffuse* The brownish or bronze pigmentation is most often in the folds of the joints abdomen, neck, face and extremities, and is much like that in Addison's disease, except that the mucous membranes are not involved We also find pinhead and larger chloasma-like spots on the arms, hands and face The first type was noted in four of our cases

It is common to get a history of outbreaks of perspiration due to disturbance of the heat regulating functions Disturbances in the nutrition of the skin are also common, such as alopecia, dryness of the skin, atrophy of the skin, and hyperkeratosis

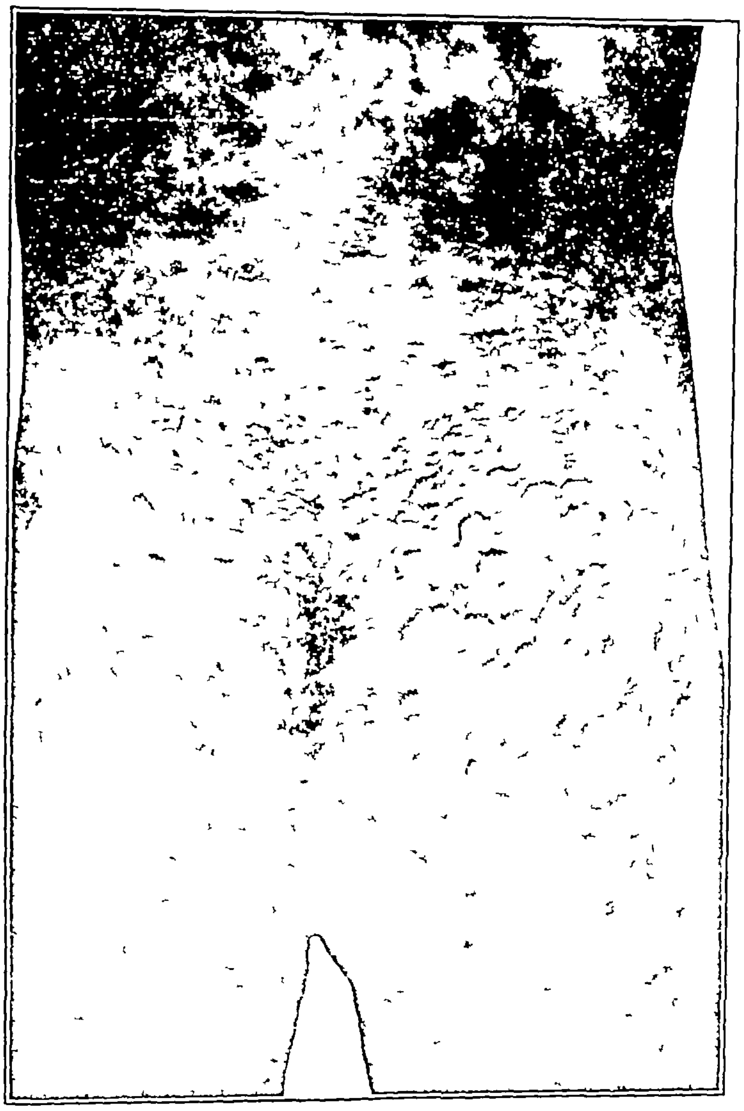

Fig 3 (Case 9) —Closer view of patient

Icterus is noted at times, and purpuric lesions are far from uncommon

Grosz,[9] Hecht,[10] Ziegler,[1] Bruusgaard[11] and a few others also describe reddish or bluish tumors in the skin which, on being opened, have a bloody serous fluid, and are of a tissue typical histologically for Hodgkin's disease This has been termed by Grosz[9] "lymphogranulomatosis cutis" They are rare, to say the least, and we have one such case in our series

Through the kindness of Drs G W Crile and C F Hoover, I have been enabled to go over the records of the surgical and medical services at the Lakeside Hospital from 1902 to date I find notes of twenty-nine cases, in most of which the diagnosis was made either by gland examination at operation, necropsy or biopsy There were twenty-four males and five females I wish to add four cases of my own, and one seen in consultation with Dr John Phillips In age they varied from 18 months to 55, most of the patients coming between the years 15 to 30 In this series of thirty-four cases there were thirteen showing more or less cutaneous symptoms and lesions in connection with their generalized condition

REPORT OF CASES

Case 1 (2725) —J F, man aged 27, first noted lumps in his neck five years before coming to the hospital, and three years later was first troubled with a pruritus A note made at this time read "Generally distributed over the body, but more marked on the extensor surfaces, there are irregular pigmented areas *split-pea to lentil size* which apparently mark the site of a papillary eruption In some places crusts may be seen still adherent, while at the periphery there is an augmentation of the pigment The skin is harsh to the touch and is of a brownish or bronze tint as if the suprarenals were involved"

Case 2 —D R, aged 27, had a markedly pigmented skin following some enlarged glands in the neck one year before.

Case 3 —In M M, girl, aged 4 years, the trouble started with a slight cold and a gland anterior to the right ear, then with an enlargement of the abdomen There were petechiae over the abdomen and the scapulae

Case 4 —J H, aged 18, was troubled with pruritus The pathologic diagnosis was lymphosarcoma

Case 5 —A E, man, aged 43, for sixteen years had a swelling under the right arm, but in the last five months the patient was troubled with a gland in the neck Two months after their excision he was troubled with pruritus Blood culture was negative

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[4] Marani, G Arch f Dermat u Syph, 1914, **120**, 781 869
[5] Blaschko Arch f Dermat u Syph, 1908, **89**, 43
[6] Wechselmann Arch f Dermat u Syph, 1907, **87**, 205
[7] Nicolau Ann de dermat et de syph, 1904, p 753
[8] Kreibisch Arch f Dermat u Syph, 1908, **89** 43
[9] Grosz Beitr z path Anat u z allg Path 1906, **39**
[10] Hecht Arch f Dermat u Syph, 1909, **98** 107 Pinkus Arch f Dermat u Syph, 1899, **50**, 37, 177
[11] Bruusgaard, E Arch f Dermat u Syph, 1911, **106**, 105

Case 6 (3932)—W G man aged 30 was troubled with intense pruritus and a lump in the right axilla and seven months later in the right side of the neck The skin was of a bronze color and covered with excoriated papules, as shown in Figure 1 He had an alopecia areata of the back of the head and masses in both axillae and both sides of neck but especially in the right side Blood examination revealed red blood cells, 3,800,000, white blood cells, 10,600, hemoglobin 67 per cent, Sahli, differential, polymorphonuclears 53 per cent, small mononuclears, 3 per cent, large mononuclears 6.5 per cent, transitionals, 2.5 per cent, eosinophils 35 per cent A histologic diagnosis of Hodgkin's disease was made from glands removed at operation

Case 7—M S, man aged 28 for one year had been troubled with a painless increase in the size of his neck and chest Lately he had had great difficulty in breathing and swellings in the axillae which had finally broken down He was troubled greatly with pruritus The skin was covered over with numerous prurigo like papules some of them having been changed by scratching into small ulcers and scars The glands under both jaws and in the axillae, as well as the mediastinal glands were greatly enlarged. In both breasts there was marked edema of the tissues and masses not connected to the skin were palpable The liver and the spleen were both enlarged. Blood examination revealed white blood cells 17,600, polymorphonuclears 80 per cent small mononuclears 1.9 per cent, large mononuclears 15.1 per cent transitionals 2.6 per cent mast cells 0.2 per cent

Case 8—P H., boy aged 14 had had the symptoms of cold chills fever nausea and vomiting followed three months later by a swelling over the left shoulder in the supraclavicular space There was a marked bronzelike pigmentation of the axillary skin folds of the neck, about the eyes, and diffuse over the abdomen, thighs and legs Some purpuric lesions were also noted over the thighs and legs Blood examination revealed white blood cells, 16,200, polymorphonuclears, 92.5 per cent., transitionals, 4 per cent, small mononuclears 2 per cent., large lymphocytes 1 per cent, large mononuclears, 0.5 per cent. Blood culture and culture of glands were negative.

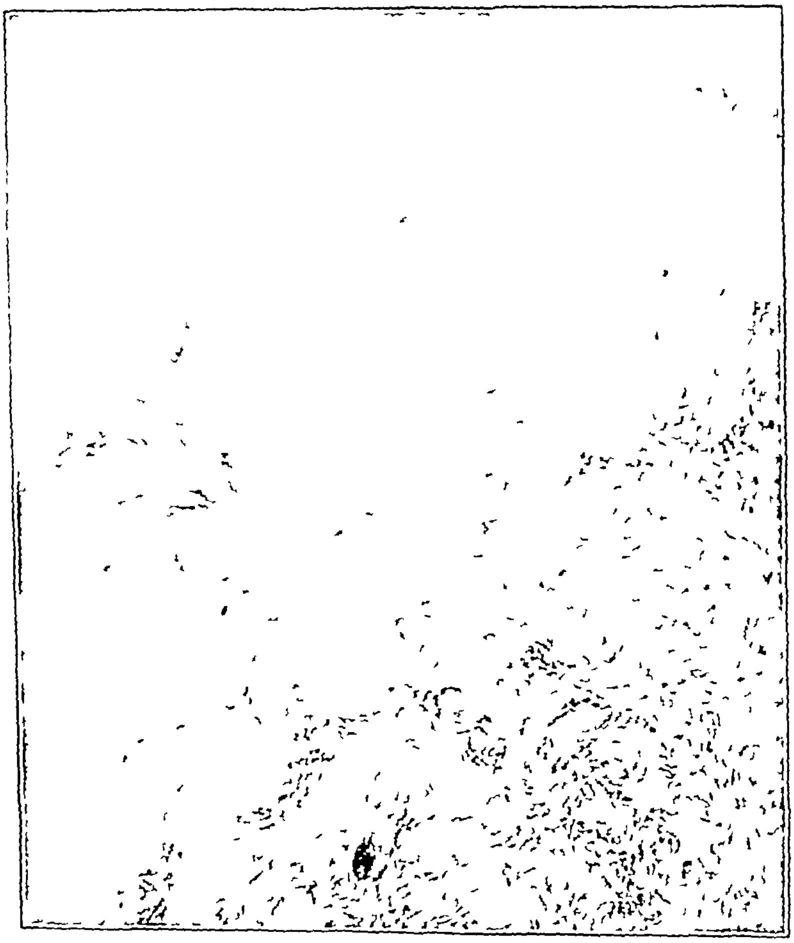

Fig 4—First stages in Hodgkin's disease of the skin showing edema of tissues and small cell infiltrations around the vessels

Case 9—L H, man aged 30, had had weakness and anorexia of one year's duration followed several weeks after the onset by a generalized pruritic eruption. Four months after the trouble began he had large glands in the groins which were operated on in a local hospital Afterward the masses recurred, and of late he has had generalized increase in the size of the glands with an intense pruritus of the whole skin (Figs 2 and 3) The skin was in a generalized hyperemic and edematous condition, dotted over profusely with papules and deep excoriations which had advanced to an ulcerative condition in spots There was a marked edema of the scrotum and right leg while the glands were generally enlarged This was especially true in the supraclavicular spaces right and left axillae and groins, while large masses of glands were palpable in the abdomen The chest showed impaired resonance in the right axillary region Blood examination revealed red blood cells, 3,392,000, white blood cells, 14,800, hemoglobin, 65 per cent The stained smear revealed slight poikilocytosis, increase in the central pole area and enormous increase in the blood platelets The differential count 300 cells, revealed polymorphonuclears, 89.3 per cent, small mononuclears, 3.6 per cent, transitionals, 5.3 per cent, eosinophils 0.8 per cent, large mononuclears, 0.5 per cent, basophils 0.3 per cent

The patient was very irritable, sank rapidly, and died in twelve days, we were allowed to remove only an abdominal gland for examination It showed an extremely marked fibrosis in some places with replacement in part of the germinal centers by endothelial cells, giant cells, large multinucleated cells, lymphocytes and eosinophils, that is, the typical picture of Hodgkin's disease A piece of apparently normal skin showed practically no change outside of a slight dilatation of the vessels of the dermis and a very slight cellular infiltration Examination of the diseased tissue, however revealed signs of a more advanced process (Fig 4) The epidermis was swollen and edematous showing a defective keratinization The papillae also showed a tissue infiltrated with serum and a certain number of small mononuclear elements Deeper in the dermis there was quite a marked collection of cells around the vessels and glands These were mononuclear in type though here and there an endothelial and an eosinophil were to be found

Case 10—H F, man, aged 25, seen with Dr J M Moore, reported that eighteen months previously the glands of the neck had begun to swell A few months later the inguinal glands also became larger Six months after the onset the patient had the cervical glands removed and for six weeks there was relief, after which they recurred again About this time he first noted an eruption on the skin which gradually became intensely itchy There was a history also of dizziness and shortness of breath (Figs 5 and 6) The entire skin was covered with a papular eruption in different stages, the larger lesions having had their tops scratched off and crusted over The eruption was a little more marked on the extensor surfaces There was some pigmentation of the skin due to scratching All the cervical glands were enlarged, especially on the left The chest showed increased dulness to the right and left of the sternum in the second interspace, while the axillary and inguinal glands were also involved The liver was palpable two finger breadths below the costal margin, while the spleen could not be felt Blood examination revealed red blood cells, 5,280,000, white blood cells, 21,000, polymorphonuclears, 78 4 per cent., eosinophils, 1 4 per cent , transitionals, 8 4 per cent , large mononuclears, 1 2 per cent , small lymphocytes, 4 0 per cent , large lymphocytes, 10 6 per cent., hemoglobin, 70 per cent An oxydase staining reaction done by Dr Christie revealed granular cells, 89 1 per cent , nongranular cells, 10 9 per cent. The patient remained in the hospital only a few days and refused further examination of tissues, glands, etc

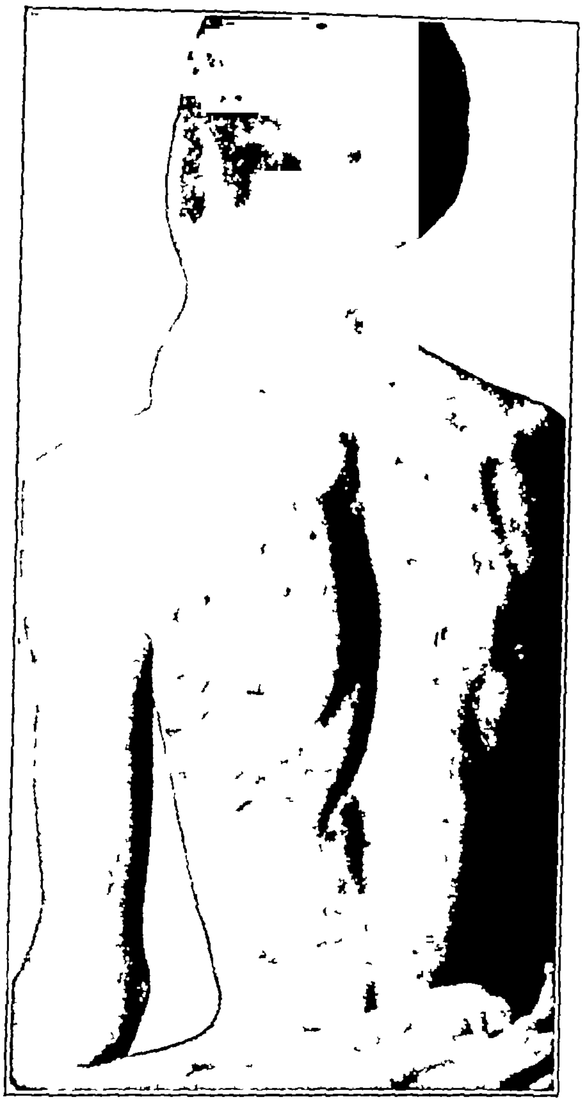

Fig 6 (Case 10) —Prurigo like exanthem in Hodgkin's disease

Case 11—E B, man, aged 37, seen with Dr Samuel Bernstein, had had anal pruritus fifteen years before which was treated off and on until 1914, when the nerves were excised, giving relief In May, 1915, I was consulted because of a troublesome urticaria which reacted by July to treatment In March, 1914, he had a swelling in the right supraclavicular region thought to be due to an abscess, which was opened and drained After this the glands alternately came and went, and finally one was excised and a diagnosis of Hodgkin's disease made by Dr Warthin of Ann Arbor The patient has since been treated with the Roentgen ray and radium but with no permanent result, as the glands have continued to grow, several have broken down, and a mass of them has increased rapidly in the left supraclavicular area The patient has been greatly troubled for months with pruritus and night sweats

The skin was entirely clear outside of a large irregular rhomboid shaped lesion 3 by 5 cm in the left supraclavicular region (Fig 7) The mass showed quite a marked induration and was apparently fused to the glands beneath, while in its center it was broken down It was a light bluish and to the distal side several smaller lesions the size of a hickorynut were noted, one of them being broken down The glands under the arms were markedly enlarged All the superficial glands were found markedly enlarged, and there was found an increase in the bronchial glands on percussion and Roentgen examination The liver and spleen were not enlarged, otherwise nothing important was found Blood examination revealed red blood cells, 5,300,000, white blood cells, 16,400, hemoglobin, 70 per cent , eosinophils, 0, transitionals, 5 per cent A differential count of 300 cells revealed polymorphonuclears, 87 per cent , large mononuclears, 1 6 per cent., small mononuclears, 6 3 per cent Platelets were markedly increased Blood culture was negative, and from a discharging axillary gland a pure culture of staphylococcus was procured A large section was removed (x, Fig 7) including both normal and diseased tissue

The apparently normal skin showed slight small cell infiltration around, the vessels of the corium, all of which were somewhat dilated The mass removed from the edge of the ulcerating tumor showed a densely infiltrated tissue The epidermis was low, and at one end where the ulceration was situated, the section showed an acute inflammatory reaction (Fig 8) In the remainder of the section all the vessels showed a more or less marked cellular infiltration of eosinophils, endothelial cells, lymphocytes and a few fibroblasts around them (Fig 9) Deeper in the tissue and in more or less relation to the vessels and glands were large masses of well defined cellular infiltrates made up of large endothelial cells, large cells with a multinucleated nucleus such as is described by Reed giant cells, lymphocytes, eosinophils and fibroblasts In some places the eosinophils were very numerous There was little or no normal tissue left in these cellular deposits, and in one portion the cellular masses extended up in long strands toward the epidermis, which was quite edematous

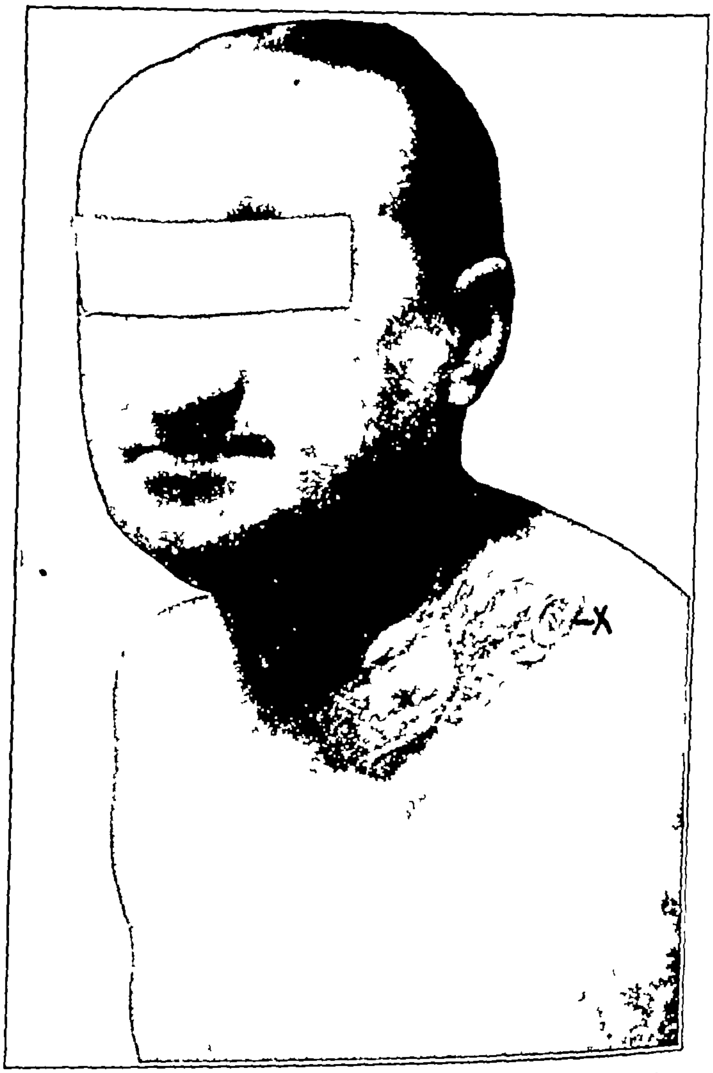

Fig 7 (Case 11) —Histologically true Hodgkin s tumor in the skin, section removed at *x*

CASE 12—J B man aged 44 had had painful swelling of glands in the axillae in August 1916 The pain subsided soon but then the cervical glands began to increase in size and shortly all the glands in the body were involved He entered Lakeside Hospital on Dr Hoover's service in February 1917, and took Roentgen-ray treatments which helped him greatly At this time the white blood count was 12,000, about 60 per cent. being polymorphonuclear in type The oxydase reaction showed about 80 per cent granular cells Cultures from an excised gland were negative a diagnosis of lymphosarcoma was made by Dr H T Karsner and Dr Christie The patient was discharged but returned April 15, with a recurrence of the glandular swellings and the history that three days previously he had noticed an eruption on his arms and chest (Figs 10 and 11) Examination revealed a macular eruption over the entire body but most marked on the arms chest thighs and forehead All the glands in the body especially the supraclavicular glands were markedly enlarged After a few weeks in the hospital the patient developed edema of the elbows knee joints scrotum and penis while the eruption had become progressively a deeper red and pruritus had developed on the lower limbs On the forehead, especially, the eruption had become a diffuse deep bluish, and showed some induration Petechiae developed in the lower limbs and arms as well

Blood examination revealed red blood cells, 4 400 000 white blood cells, 58 000 hemoglobin 70 per cent The white count gradually rose to 152 000, and a differential count now revealed polymorphonuclears, 5 7 per cent , small lymphocytes 86 3 per cent large lymphocytes, 5 9 per cent., mast cells 0.2 per cent , transitionals 1 5 per cent., eosinophils, 0 4 per cent (Fig 12) A section removed from one of the bluish macular areas and stained with the ordinary stains showed a tissue with an edema especially marked around the vessels glands and follicles There was an intense cellular infiltration around the deeper vessels of the corium made up entirely of a uniform cell type deeply staining and much like a small mononuclear or a little larger This infiltration was also found around the deep glands both sebaceous and coil and around the hair follicles The areas were sharply defined instead of spreading out into the tissues and between them In a well developed area there was an almost total loss of all stroma or reticulum

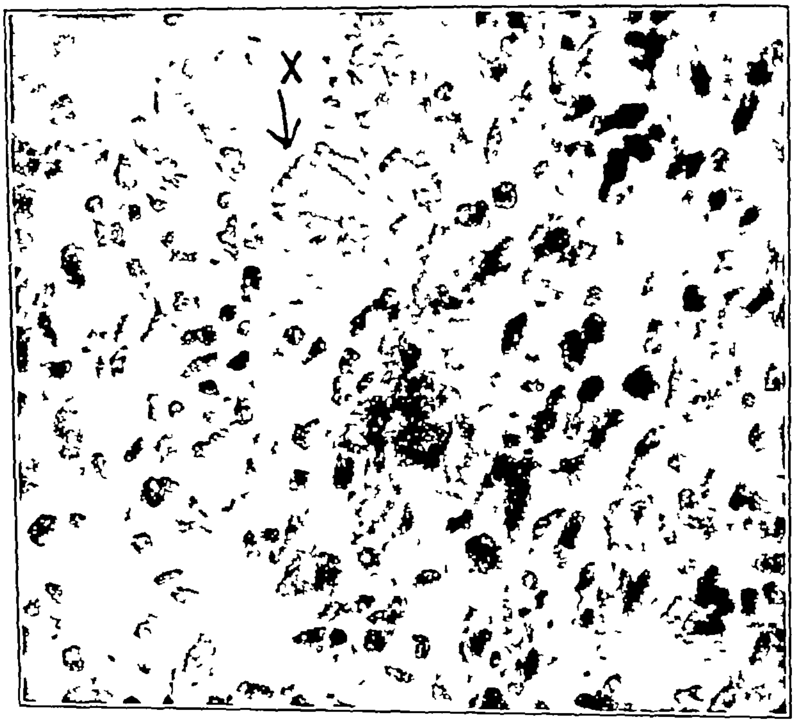

Fig 8 (Case 11)—Tumor mass of endothelial cells fibroblasts, deeply staining granular eosinophils and large giant cells (at x) × 1 300

This was probably a case of lymphosarcoma changing into a leukosarcoma in the short space of a few weeks

CASE 13—S M man, seen through the courtesy of Drs John Phillips and S L McManigal had a papular eruption distributed over the entire body and moderate in amount. Some of the lesions had been scratched and were crusted over while there was more or less pigmentation of the skin The cervical, bronchial and inguinal glands were all enlarged, while the spleen showed an increased dulness to percussion

Blood examination revealed red blood cells, 4 600 000, white blood cells 26 000 hemoglobin 80 per cent The differential revealed polymorphonuclears 80 per cent. small mononuclears 3 per cent , large mononuclears, 9 per cent , transitionals, 5 per cent , eosinophils, 2 per cent , basophils, 1 per cent

This seemed to be a prurigo-like exanthem in a case of Hodgkin's disease of advanced type

SUMMARY OF CASES AND COMMENT

Among thirty-three cases of Hodgkin's disease and one questionable case, thirteen involvements of the cutaneous surfaces were noted Pruritus was the principal complaint eight times, a prurigo-like exanthem was seen six times, a bronzelike pigmentation four times, petechiae twice, urticaria once, and edematous swellings three times In Case 6 the patient had an alopecia areata, and in Case 10 partially broken-down tumor masses were found in the left supraclavicular space, showing tissue histologically characteristic of lymphogranulomatosis cutis In Case 12, which was a probable lymphosarcoma, it changed into a leukosarcoma in the short space of a few weeks

From an analysis of our cases and from the literature, we believe we are justified in drawing several deductions The skin lesions caused by Hodgkin's disease can probably be classified in two groups (1) a true lymphogranulomatosis cutis represented by our Case 10, by those of Bruusgaard,[11] Grosz,[9] Hecht,[10] Ziegler[1] and perhaps a few others, and (2) a group of lesions, set up, it is true, by the general infection, and yet not showing the characteristic histologic changes locally A classification much like that of Audry's and Arndt's may be used for systematizing our findings Under the "pseudoleukemids" or "pseudolymphademids" we would place the purpuras, prurigo-like exanthems, prurítides, urticarias, pigmentations, edemas, some of them disturbances of nutrition, as in our case of alopecia areata, and some of them cases of universal exfoliating erythrodermia These lesions are a general result of the systemic infection, if such it be, on the entire system Their histologic picture, of course, varies with the condition, but in most cases shows nothing characteristic or possible of a diagnosis of lymphogranulomatosis In a few words, it probably consists of a peripheral dilatation of the vessels, some edema of the tissues, and a greater or lesser small cell infiltration around the vessels, coil and sebaceous glands Ziegler puts it well when in substance he says

> The changes in prurigo one should diagnose as granulomatous with caution and the same is also true in urticaria,

pruritus and other eczematous conditions They are, however, important in that on these grounds the localized small specific areas of the lymphogranuloma may develop The mere signs of skin atrophy, loss of lanugo hairs, hyperkeratosis, etc, should not be spoken of as specific, but they speak more for a wanting nutrition of the organism

To my mind they also speak of a toxemia like the tuberculids in tuberculosis And as I have said before, in contrast to the latter, I do find in the literature and from my group a small number of cases with quite another skin change

There is a definite cellular infiltration with lymphocytes, eosinophils, endothelial cells, fibroblasts, giant cells and large multinucleated cells These areas show quite a marked vascularity with edema of the tissues and more or less destruction of tissue stroma and replacement with fibrous tissue These cases are true examples of Hodgkin's disease of the skin, and are of a class like Case 10, with definite tumor formation, or perhaps occasionally like the two cases reported by Wechselmann[6] and Nicolau[7] with diffuse exfoliating erythrodermia [12]

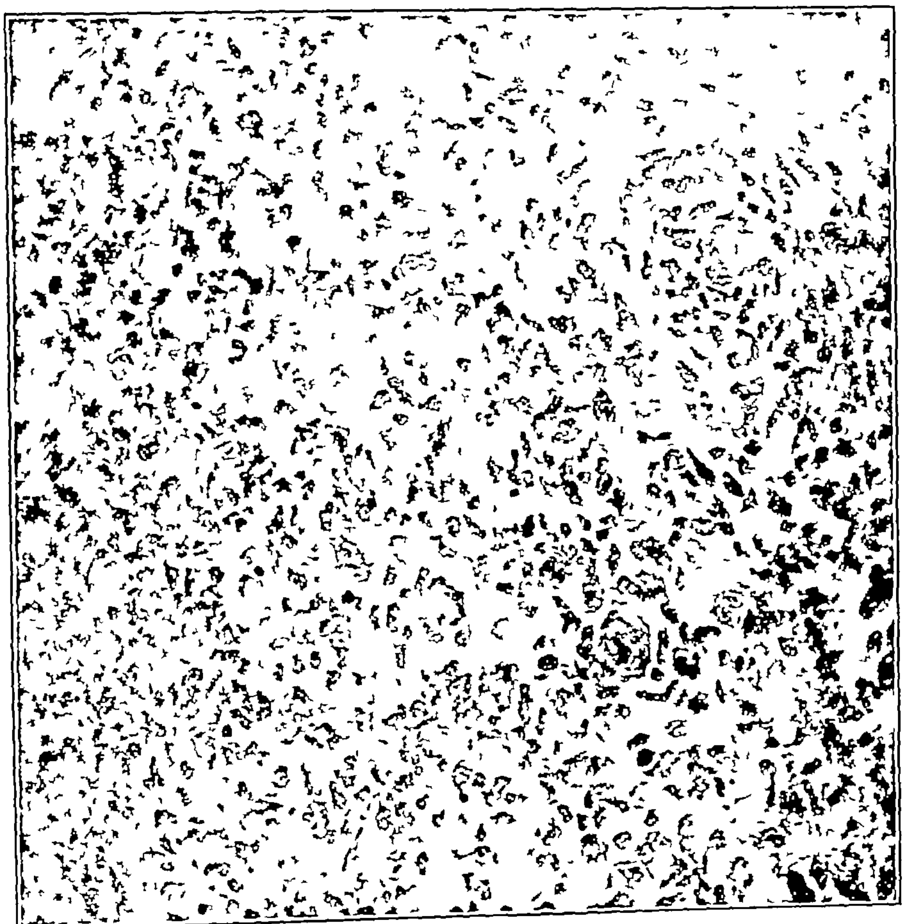
Fig 9 (Case 11) —Endothelial cells, fibroblasts and multinucleated cells, × 310

As Marani[4] says, "The same irritating substance may call forth different reactions, and different irritating substances may be the cause of the same or closely related reactions" The French school in general believes mycosis fungoides to be a cutaneous form of Hodgkin's disease Ziegler,[1] Wechselmann,[6] Hazen and Strobel,[13] I believe, and others take the same view Bunting and Yates[2] have had three cases of pseudoleukemia with Hodgkin's blood picture occurring for months and in one case over years In one case seen by them the Hodgkin's blood picture was succeeded before the patient's death by a picture of an acute lymphoblastic leukemia We are all acquainted with the case of mycosis fungoides reported by Pardee and Zeit[14] which just before death showed the signs of lymphatic leukemia, confirmed also at necropsy Witness my Case 12 with a change from a possible lymphosarcoma to a leukosarcoma in the short space of a few weeks Dr Wende's[15] case of probable Hodgkin's disease with transformation before death to a leukemia is also brought to mind Pelagatti[16] has seen clinical mycosis fungoides with leukemia of the blood Any pathologist knows how often a clinical diagnosis of lymphosarcoma is turned into one of Hodgkin's disease at necropsy and vice versa Many believe it is impossible from a skin section to distinguish between Hodgkin's disease, mycosis fungoides and some of the other related conditions

I heartily agree with Bunting and Yates that if all the efforts spent to separate these conditions had been used to correlate them, we should probably be nearer to the solution It certainly seems to be an infection, and I hope to report my bacteriologic findings and a comparative histologic study more in detail in a later paper

Suffice it to say that in any case of suspicious, persistent pruritus, urticaria, prurigo-like exanthem, bronzelike pigmentation, etc, of unexplainable origin, a possible Hodgkin's disease should be kept in mind and suitable examination of blood and glands should be made

The treatment of the condition is, of course, rather hopeless External local antipruritics should be used with the Roentgen ray for both the skin involved and the glands

Bunting and Yates report good results from the total extirpation of the diseased glands, focus of infection and follow-up Roentgen ray Arsenic internally and good hygiene are also to be recommended

Note—We have since heard from Dr Yates that the patient in Case 13 has died, necropsy showing very marked involvement of the bronchial and retroperitoneal glands Specimens were made from all tissues and we hope in a later paper to include this data

2073 East Ninth Street

ABSTRACT OF DISCUSSION

Dr. Henry H Hazen, Washington, D C The first point I should like to make is whether or not we are justified in absolutely separating neoplastic growths from inflammatory growths At the present stage of our knowledge I do not believe that we can be too dogmatic on this point A study of this group of diseases would seem to indicate that there may be a resemblance As bearing on this point, McDonough's work on the "Evolution of the Sarcoma Cell" should be borne in mind

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[12] For the relation of Hodgkin's disease of the skin to the leukemias of Kaposi, leukosarcoma, lymphosarcoma, lymphodermia perniciosa mycosis fungoides, etc, I would refer the reader to the highly suggestive work of Bunting and Yates (Footnote 2) They believe that these diseases are probably all of one general type of infection, but with different manifestations

[13] Hazen and Strobel Jour Cutan Dis, 1911, 29, 147 This contains a review of the literature

[14] Pardee and Zeit Jour Cutan Dis, 1911 29 7

[15] Wende, Grover Am Jour Med Sc, 1901, 112, 826

[16] Pelagatti, quoted by Nanta Ann de dermat et de syph, 1912, Series 5, No 3, pp 572, 639, 694

In regard to Hodgkin's disease I think we should be careful not to accept the bacteriologic findings of Bunting and Yates as absolutely final for similar results have been found in apparently normal lymph glands Also, it should be borne in mind that it is frequently difficult for clinicians actually to diagnose this disease inasmuch as there is considerable discussion both as to the histologic and clinical pictures as Warthin has shown Further I cannot accept the blood picture of the increased relative and actual transitional cell count as being pathognomonic. I was particularly glad to hear Dr Cole speak of leukosarcoma for we rarely hear of this condition in American literature

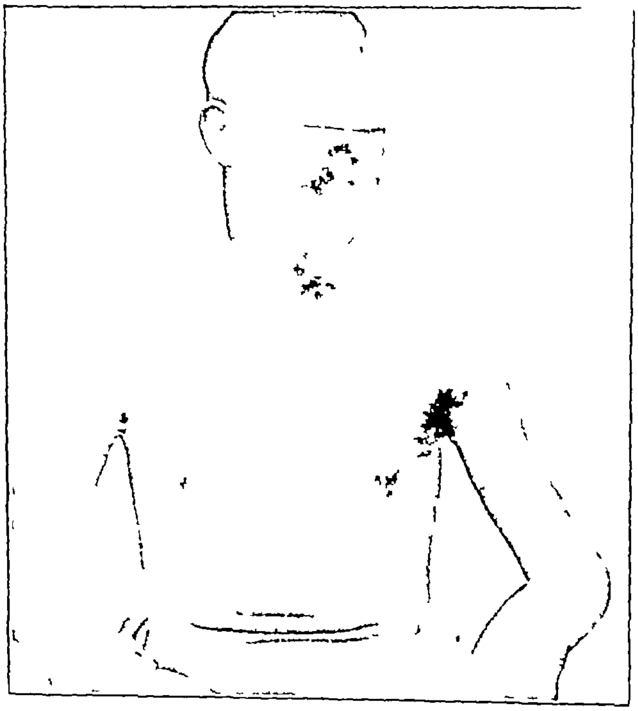

Fig 10 (Case 12) —Leukosarcoma with skin involvement

As regards classification it is possible that we can make six divisions First, the group of lymphomatoses, which may be divided into the leukemic represented by lymphatic leukemia and aleukemia in which group mycosis fungoides and Hodgkin's disease should be placed The second great group is the myelomatoses, the leukemic stages of which are represented by the so-called splenomyelogenous leukemia and the aleukemic stage by multiple myeloma The third great group are the lymphosarcomas, in which the leukemic stage is represented by leukosarcoma and the aleukemic stage by lymphosarcoma As to whether or not there are any mixed types we are uncertain, but it is theoretically possible It should always be borne in mind that practically all of the aleukemic conditions may become leukemic, and that the leukemic conditions may have aleukemic stages

Dr. Sigmund Pollitzer, New York In the development of any science or any special department of knowledge we have first the crude isolated observations, then more numerous observations and a closer study of details, and finally there comes the genius who groups all the observations, draws general deductions and classifies our knowledge of the subject. In looking over the group of diseases which forms the subject of the admirable papers presented, one is struck with the fact that while the last twenty years have added very greatly to our detailed knowledge of the conditions we are as far as ever from a general understanding of the subject as a whole The Darwin of the lymphatic diseases of the skin has not yet been heard from What is lacking at present is a knowledge of the etiology of these diseases, and until we have found the causative agent or agents we shall be groping in the dark We do not know whether we are dealing with distinct types of disease, or whether all these conditions are merely variants of a single type In the meanwhile a study of the origin of the different types of cells found in varying degrees in all these conditions is of primary importance and in this respect an observation of Dr Wise seems very suggestive I refer to the group of proliferated endothelial cells shown in the corium in one of his pictures We have a marked proliferation of endothelial cells in the lymph nodes in many leukemic conditions, and the occurrence of a similar proliferation in the skin seems suggestive of a close connection between the lymphatic endothelial hyperplasia and the disordered white cell balance

Dr Harold N Cole Cleveland In studying the slides of Dr Fraser I would say that in two of the specimens he showed of glands I am unable to determine between them and a case of Hodgkin's disease, such as I have They are absolutely identical Is it not significant that in all these cases we get a history something like this Following diseased tonsils or diseased teeth or some other focus, they first notice a swelling of glands in those parts of the body, and later a deeper involvement, the patient becomes exhausted, and finally dies

I am not here to stand up for Bunting and Yates In only one of our cases did Dr Graham get a diphtheroid organism from a gland and later at necropsy, but we should take up and study these cases both clinically and histologically

Dr J Frank Fraser New York One point in regard to diagnosis is that in the early or erythematous stage of mycosis fungoides it cannot be differentiated from psoriasis or parapsoriasis on histologic grounds alone

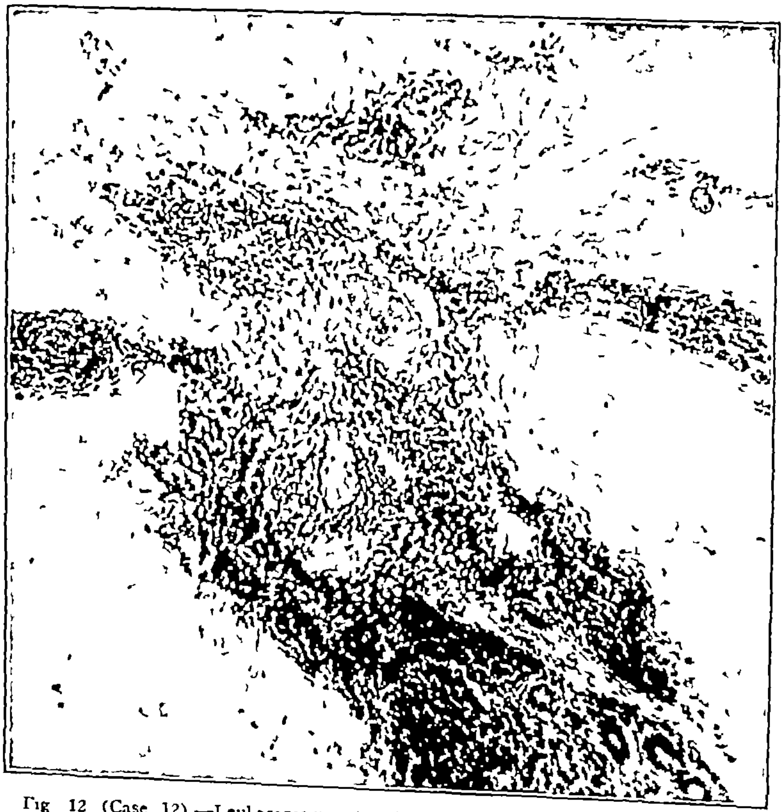

Fig 12 (Case 12) —Leukosarcoma, × 60 dense cellular infiltration around vessels glands and hair follicle cells uniform in size and character

In regard to the relation of mycosis fungoides to the leukemias, the histologic picture in the lymph nodes may be the same. From a study of the cells in a single section it may be impossible to differentiate between a leukemia, lymphosarcoma or leukosarcoma, which is an infiltrating lymphoid tumor with a leukemic blood picture. We know little about the nature of the leukemias Mallory and his followers say the process is neoplastic, the blood picture representing a circulating metastasis

I consider that dermatologists have been making a mistake in regarding mycosis fungoides as a disease of the skin alone In all the cases in my study there was general involvement of lymphoid tissue In two there was involvement of the lungs, and in one of them, thickening of the bronchi was demonstrated by Roentgen-ray examination several months before death The other patient is now under treatment at Dr Trimble's clinic, and is suffering from a cough which does not yield to treatment I think the whole subject offers a great field for further investigation

Dr Fred Wise, New York Some of the facts brought out by the papers in this symposium tend to support certain conceptions, in my mind, with regard to diseases of this type The interpretation of the clinical pictures included in the papers presented is a matter of some importance, especially to those who teach dermatology Mycosis fungoides, for example, seems to be a disease *sui generis,* presenting clinical features which differ from other, closely related, but not identical dermatoses

In presenting a patient with mycosis fungoides before a section of students, we are compelled to limit ourselves to an exposition of the clinical features of that disease, without regard to the histopathologic findings, which may not be at hand at that moment, or may never come to light, with respect to that particular case

If the cutaneous picture is the familiar one recognized as mycosis fungoides, let it be called by that name Never will I forget the case of a patient brought to the clinic by Dr Fordyce several years ago, who presented an eruption so typical of mycosis fungoides that the youngest member of the clinic staff made the correct diagnosis at a glance A few minutes later, examination of the patient's blood revealed a lymphatic leukemia

The point I want to bring out is, that this patient presented a dermatosis which, before a class of students, should be designated mycosis fungoides on clinical grounds Speaking before a body of trained dermatologists, the much broader conception of this class of diseases, their inclusion in groups embracing the various diseases of lymphatic origin, may be profitably dismissed

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Dental Education in New Zealand—Consul General Winslow at Auckland (*Commerce Reports,* July 12, 1917) says that the minister of public health of New Zealand has reported that only fifteen dental students have been fully graduated during the past six years from the only recognized dental college in the dominion The great majority of the students leave school before graduation and practice under registered dentists There are 763 registered dentists in New Zealand, of whom only sixteen registered during the five years ending with 1916, and some of them came from outside colleges, some from American dental colleges The latter are said to stand well At the meeting of the New Zealand National Dental Association in Wellington in April, 1917, resolutions were passed and forwarded to the government covering the following points matriculation examination of the University of New Zealand be adopted as the standard entrance examination for the certificate of proficiency in dentistry, a two-year course to be sanctioned at any center where teaching facilities are provided, plus two years at the Dunedin Dental School, the proper authorities to be asked to establish a board of dentists to arrange and conduct the course for the certificate of proficiency in dentistry

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TUMORS OF THE CAROTID BODY*

F B LUND, MD

BOSTON

Tumors of the carotid body have great surgical and pathologic interest, but are not of so rare occurrence as they were at one time thought to be Dr Scudder[1] of Boston described a case in 1903, which I think was the first case reported in this country, Dr Keen[2] of Philadelphia, in a comprehensive and extremely interesting article, first called the attention of the American medical profession to the condition Since then, Drs DaCosta,[3] Callison and McKenty,[4] Balfour and Wildner,[5] and others, have reported isolated cases and have written at length on the pathology of the condition The number of cases described in the literature, which Dr Scudder stated in 1903 were seven, and which Dr Keen, by his investigation in 1906, increased to twenty-six, have now increased to about a hundred, and these curious little tumors have been dissected, studied, and described almost *ad nauseam et ad infinitum*

This case is presented for the reason that it is the only one that I have found in a review of the literature in which operation has been successfully performed for an intercarotid tumor on both sides of the neck, the first operation, on the left side of the neck, at the Boston City Hospital by Dr George W Gay in 1887, up to which time, so far as I can find, no cases had been reported in the literature, and the second operation, on the right side, which required the ligation of the common carotid and removal of an inch of the internal carotid having been performed by me in 1916, twenty-nine years later The patient, now at the age of 54 years, is in perfect health The fact that Dr Gay failed to recognize the nature of the tumor does not detract from his skill in removing it, for this was one of the few patients from whom these tumors have been removed without ligating the common carotid, and the fact that he was able to do this, probably made it possible for me to remove the tumor on the other side, twenty-nine years later This tumor had attained considerable size, and its vascular connections were such that I found it quite impossible to remove it without at the same time ligating the common and removing a portion of the internal carotid artery, a serious operation, as the statistics show, in a patient 54 years of age, and one which might have induced either death or hemiplegia had not the vessel on the other side, owing to the skill of Dr Gay, been left intact

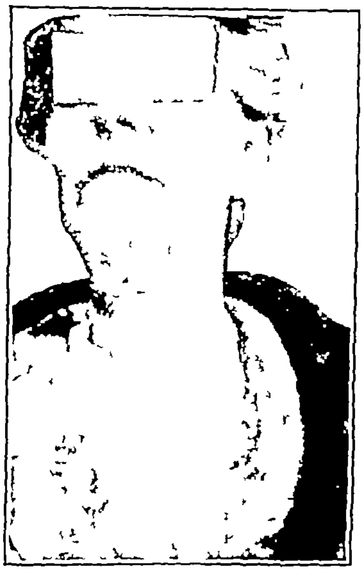

Fig 1 —Scar from operation by Dr Gay in 1887

Reported cases show that the removal of these very vascular tumors has been attended with a noteworthy mortality which Keen found was over 25 per cent

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* Read before the Section on Surgery General and Abdominal at the Sixty Eighth Annual Session of the American Medical Association, New York, June 1917

[1] Scudder, C L Tumor of the Intercarotid Body A Report of One Case, together with All Cases in Literature, Am Jour Med Sc September, 1903

[2] Keen W W Tumors of the Carotid Gland, THE JOUR A M A Aug 18 1906, p 469 Ann Surg 1906 14 393

[3] DaCosta J C Ann Surg, 1913, 58 426 Report of a Ca of Tumor of the Carotid Body Ann Surg

[4] Callison and McKenty Ann Surg 1913 58 740

[5] Balfour and Wildner Surg, Gynec and Obst, February, 1914

In fifty-four patients reported by Callison and McKenty, they found that forty-two patients recovered and twelve died, but to this number should be added four deaths from recurrence, and six other speedy deaths in prospect from recurrence known to be in existence when the case was reported, a total of twenty-two deaths out of fifty-four cases

Complications—Keen stated that only seven of the twenty-seven patients collected by him recovered without complications The reason for these high mortality and disability percentages is not far to seek for the tumors are very vascular, they are situated between and behind the carotids lie against and sometimes invade the internal jugular and are in relation to and sometimes incorporated with the pneumogastric, glossopharyngeal hypoglossal and spinal accessory nerves

In at least six of the cases described in the literature, a portion of the pneumogastric nerve had to be removed and in all these cases the patients died of pneumonia

Keen reported two cases of injury of the sympathetic four of the hypoglossal, and two of the lingual nerve In thirteen cases Keen reported that the internal jugular had to be tied, and most of these patients died of edema of the lungs

Only fifteen of the fifty-four cases reported by McKenty escaped without ligation of the common carotid In thirty-two cases all three carotid arteries had to be tied

The injury of either of the common carotids, the internal jugular vein, or the pneumogastric nerve is attended with danger, and in undertaking an operation on an intercarotid tumor of any size, we may find it unavoidable to ligate or remove portions of all three of these structures The tumors sometimes involve the internal carotid as far as its entrance into the base of the skull, as in DaCosta's and McKenty's cases In McKenty's case the operation had to be abandoned on account of technical difficulties, and this has also been the experience of others who have tried to remove these tumors In fact, the danger of these operations appeared so great to DaCosta—whose first patient suffered complete hemiplegia on the eighth day—that he advised against operation on these tumors unless recent rapid growth had led to a suspicion that invasion of important neighboring organs had taken place, or, in other words, a semimalignant condition had ensued These tumors, for many years at least, may be regarded as benign They are of slow growth, and when small are painless, in fact, causing no symptoms Often the surgeon is not consulted until the tumors have attained the size of an egg, and are painful, the pain often radiating to the ear and attended by dysphagia (hypoglossal), pupillary contraction (sympathetic), and vasomotor disturbance of the vessels of the neck and face As they grow, the tumors invade progressively the arteries and veins, and their removal becomes more difficult and dangerous It seems to me that, whenever possible, they should be removed when small, since they are then often not closely attached to the carotid, are certainly not malignant, and may sometimes be removed without subjecting the patient to the dangers of carotid ligation The general rule for the early removal of all tumors should hold in these cases Gay applied it in 1887 in the case cited, with a result that speaks volumes for the benign character of the tumor in its early stages and emphasizes the difference between the simplicity and safety of his operation and the difficulties and dangers which universal evidence has shown attends late surgical procedures

The Intercarotid Body—These tumors are derived from the intercarotid body, which has been studied and theorized on extensively Certain facts seem to emerge Normally, it is a little body about the size of a kernel of wheat, and is situated at the bifurcation of the common carotid artery, usually at its inner side It exists in all embryos, and persists after birth, but usually disappears about puberty If it persists, it may undergo development into the intercarotid tumor now under consideration

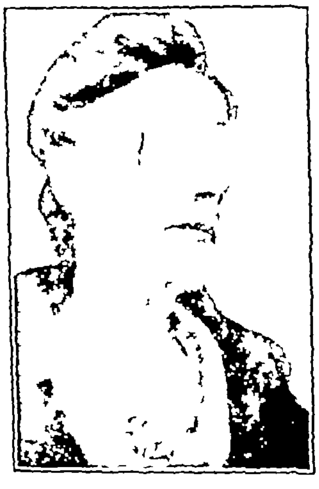

Fig 2—Scar from second operation ten days after removal

The best summary of our knowledge of this subject is that given by McKenty[4] A careful perusal of his article and also that of Wildner will show the earnest seeker after truth that since von Waller first dissected these bodies in 1766, they have been regarded as a ganglion, a gland, an epithelial organ, a vascular organ, and a rudimentary organ They are now regarded as "chromaffin organs" from some peculiarity of their staining qualities, and as connected with the sympathetic nervous system, to which they are remotely related The most influential member of the chromaffin family seems to be the suprarenal gland, the active principles of which we employ for raising blood pressure and stopping hemorrhage

In regard to its physiologic activities we learn that Mulon used a watery extract of the carotid bodies in horses with which he produced a rise of blood pressure in rabbits Another investigator, using a glycerin extract, produced a fall of blood pressure in cats You may apparently take your choice As Callison says

> Its small size and the contradictory results of experimental work and the lack of clinical observation, indicate that whatever function the gland may have is not important"

Clinical Signs—When tumors of this little gland occur, the history is somewhat as follows A small, hard, painless tumor appears in the neck of an adult, between 20 and 50 years of age It causes no symptoms, and does not induce the patient to consult a physician until its size produces noticeable deformity It is on a level with the top of the thyroid cartilage, movable laterally but not vertically, and has an appearance of pulsation, which is found on examination not to be expansile, but due to the fact that the internal or common carotid artery is in front of it If at this favorable stage the tumor be removed, it may be found that it is not as yet attached firmly to the carotids, and may be dissected free and removed, as was done by Dr Gay in the case described At this stage, in my belief, the growth is certainly not malignant

As the tumor enlarges, it progresses in a downward and upward direction, often growing around and surrounding the carotids so as to require their removal, to lack of knowledge, and that there are cases scattered all over the country undiagnosed and being treated or operated on as sarcoma or something else

No matter how successfully the operation is done so far as life is concerned, very few of these patients get well without some very unpleasant consequences of the operation The pressure on the sympathetic nerve and manipulation trying to get out the tumor, result in disturbance Ligation of the carotid is a serious thing While the patients do not all die, the percentage of deaths from hemiplegia, persisting for a number of years, is high Aphonia may be present, as it was in my case My patient could not speak louder than a hoarse whisper and was most miserable in consequence At the death of her sister I saw her, and at that time she had accommodated her vocal chords in such a way that she could speak loud enough so that you did not particularly notice the paralysis of the vocal chords

The gravity of the prognosis should make it obligatory that the knowledge of the nature of these tumors should be widespread The unexpected operation on one of these tumors, requiring ligation with its consequences, followed by the postoperative disturbances, make it difficult to explain afterward It is much better to anticipate these things, and say that a tumor in this position may be of such a nature and may be followed by such consequences

There is unquestionably a long period in my case, nine years, in Dr Thorn's case of four years, in which the patient knew of the existence of the tumor In my case I had operated nine years before for a postpharyngeal abscess At that time I felt the gland about the size of a lemon and supposed it was a tuberculous lymph node, giving rise to a postpharyngeal cold abscess When I operated on the patient the tumor extended from the base of the skull well down toward the lower part of the neck, and the removal of it was attended with good deal of difficulty

There is no question that there is a period in which they are benign, afterward they become malignant In regard to the possibility of removing them without ligation of the carotid, while it looks to be formidable and is formidable, still, with a combination of sharp and blunt dissection it is possible, in many of these cases, in spite of the oozing, which can be controlled by lifting on the tumor, to dissect them out, as mine was The artery looked like the appendix after having shelled off the thickened peritoneal coat It looked worm-eaten and I expected she might develop an aneurysm So that you can practically strip off the sheath of the vessels and not jeopardize it so far as thrombosis or aneurysm is concerned

Dr Fred B Lund, Boston I am glad that Dr Stillman brought out the importance of making the diagnosis, if you can, in these cases, because the results of operation may be serious My patient had aphonia for a short time, but it cleared up

These tumors can sometimes be dissected off from the carotid as Dr Stillman says, and he is to be congratulated on his success A friend informed me that he had no difficulty in a similar case in lifting the tumor by a piece of tape and getting it out without ligation

The definition of conservatism is interesting It was a conservative procedure to do this operation on a small tumor, as Dr Gay did The result has been that the woman has had a long, happy life If he had been one of the men who say, "Oh I guess we will wait and see," she would have been dead, and such a procedure would not have been true conservatism

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Relative Values —One principle in medicine is worth a volume of loose disconnected facts —Dr Benjamin Rush

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"SOUP BONE" IMPLANT FOR THE CORRECTION OF DEFECTS OF THE SKULL AND FACE *

W WAYNE BABCOCK, M D
Surgeon to the Samaritan Hospital, American Hospital for Diseases of the Stomach, and Garretson Hospital
PHILADELPHIA

In the five cases here recorded a prosthesis was obtained by embedding under the scalp or the skin of the face, portions of beef or mutton bone removed from the hospital "soup-kettle" The results are interesting as they are apparently contrary in many experiments — indicating that alien or devitalized bone introduced into the living tissue undergoes absorption or expulsion — and that such bone does not serve a useful purpose for the replacement of normal osseous tissue It is evident, however, that most of the experimental evidence as to the transplantation of bone is based on experiments made on the long bones of the body, and it is quite possible that some of the results obtained in experimenting on bones developed from cartilage may not apply to those bones developed from membrane We were, in one case, unsuccessful in transplanting a boiled bone from a recently amputated leg for a defect of the tibia, and have observed the rapid absorption of ivory pegs, although Lexer has even used masses of horn in the formation of new joints At any rate, we can record the interesting clinical observation that large plates of dead foreign bone may show no external evidence of absorption or weakening two years after implantation under the scalp It is probable that the dead bone serves as a scaffold for the ingrowth of new firm tissue

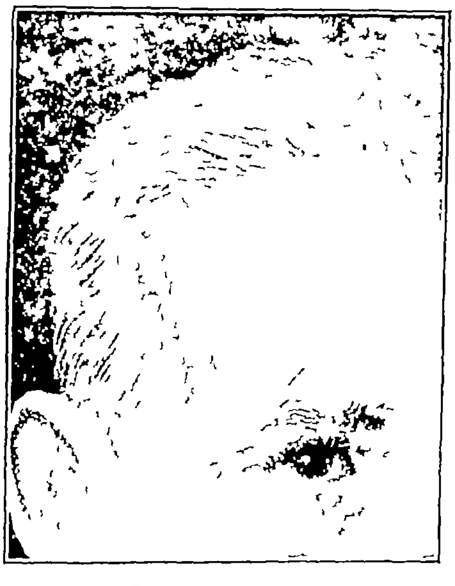

Fig 1 (Case 1) —Character of skull defect before operation

CORRECTION OF DEFECTS IN THE SKULL

A defect of the skull may be objectionable on account of the disfigurement, the cortical irritation or epilepsy produced, or other symptoms due to static movements of portions of the brain through the opening Congenital defects in the skull requiring correction are seen in hydrocephalus and cranial meningocele Much ingenuity has been expended in the correction of these various defects The area may be covered by portions taken from the outer table of the skull, used in the form of free transplants, or by an osteoplastic flap transplantation Such osteoplastic closure has been found useful in small openings, but not so practicable for the larger ones Alien substances, such as thin plates, often perforated, of silver, gold or other metal, have been used Celluloid, ivory, hard rubber, horn, paraffin, cork and other materials have been embedded Plates of sheet mica have been advocated by Kane[1] Many of these substances are obviously undesirable Silver filigree we found to be of insufficient strength, while Lane's plates placed in the form of bars across large openings in two instances were useful[2] The alien substance may cause such a profuse serous secretion in the wound, or tissue irritation, as to necessitate removal Paraffin and cork certainly should not be used Autogenous tibial transplants have the advantage of being well tolerated, but require an additional operation with its added risk Mauclaire[3] has filled these defects by transplants taken from the lower angle of the scapula, and by slices from the tubercle of the ilium, or from the great trochanter Flaps of bone from the sternum were used in two cases by P Muller[4] An autogenous rib graft with attached periosteum was used by Kahle These various substances are either laid over the defect or wedged into position, fixed by small hooks, which are dropped in drill holes placed in the edge of the adjacent bone or fastened by sutures, wires or screws to the skull, the pericranium or other tissue The use of fat transplants to fill cranial defects we can hardly commend

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* Read before the Section on Stomatology at the Sixty Eighth Annual Session of the American Medical Association New York, June 1917

[1] Kane Railway Surg Jour August, 1913

[2] Babcock, W W Osteoplastic Surgery of the Face The Journal A M A, Jan 16, 1915, p 203

The 'soup bone" implant here advocated has not only the advantages of convenient accessibility, mobility and sufficient size, but apparently produces, when embedded, little or no irritation of the adjacent tissue, and seems to give a strong and perhaps permanent closure

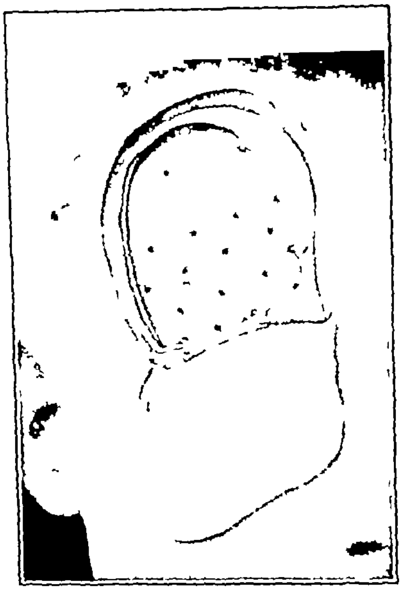

Fig 2 (Case 1)—Flap of scalp turned back and piece of scapula (drilled) sutured to fit defect in skull

TECHNIC

A bone taken from the soup-kettle has the advantage of having less animal matter than a fresh bone Care must be taken, however, that it has not been rendered too brittle by prolonged boiling The scapula, on account of its size, thinness and porous medulla, is preferred Such a boiled bone of a sheep or ox is selected, rinsed, reboiled for one hour in a large quantity of water, then removed and placed over night in a 1 20 solution of phenol (carbolic acid) Previous to the operation, it is again boiled for a third time for at least one-half hour in plain water By this time most of the animal matter has been removed, the bone is somewhat softened, and can be readily cut into the required shape by a heavy pair of scissors, by bone-cutting forceps, or a heavy cartilage knife The spine of the scapula is cut away, ridges and rough surfaces removed, the bone trimmed and contoured to the required shape and perforated by many drill holes placed about one-half inch apart A flap of the scalp with its margin well beyond the defect is then raised, or a sufficiently long straight incision made over the area, the periosteum separated from the margins of the defect and stripped well back, and the prepared 'soup bone" fitted into or over the opening, being contacted with the living bone and wedged or fastened under the margin of the raised periosteum Fixation may be aided by a few sutures of chromicized catgut Absolute hemostasis is important, and the skin margins should be accurately sutured in position, no drainage being used The stitches are removed on the third or fourth day If later there is a marked serous accumulation, this is removed under strict aseptic precautions by introducing a grooved director through the wound, the opening made being permitted to close at once, as continued drainage would probably be followed by infection and expulsion of the alien bone The bone soon becomes fixed in its new position and is probably early permeated by new blood vessels

Case 1—*Epilepsy and cranial deformity following osteotomy and injection of paraffin Not relieved by removal of paraffin Soup bone" implant with relief from convulsions and good cosmetic result*

A H, man, aged 33 years German, laundryman, with negative family and previous history, in 1903, while cleaning a German service revolver, was accidentally shot, the bullet entering the temporal bone about two inches in front of the upper part of the lobe of the ear on the right side and ranging forward and upward He was taken to a hospital in Bonn, Germany, and a part of the temporal and frontal bones down to and including a part of the right supra-orbital ridge removed Two weeks later paraffin was injected to fill the large defect The paraffin softened and gradually became lumpy and irregular Nine years after injury he began having epileptic convulsions, at first every three months The paraffin was removed in 1912, in Philadelphia No relief followed, the convulsions occurring from two or three times a week to two or three times daily The convulsions were preceded by formication in the scar, were initiated by retraction of the head to the left, and were followed by troublesome headaches April 13 1915 he was operated on at the Samaritan Hospital, a flap being raised along the lines of the two previous operations, dense adhesions separated, and a portion of the perforated scapula of a sheep fitted into the defect The wound healed without irritation despite the large amount of scar tissue from the previous operations The patient left the hospital in one week A marked reduction in the number of convulsions followed the operation Since December, 1915, or over one year, under small doses of ferrocyanid of iron the patient has had no convulsion and has been practically free from headaches In September, 1916, he was struck a violent blow over the implant by a door, without harm The contour of the frontal region is well restored, and after two years the edge of the "soup bone" can be easily felt and shows no sign of absorption The implant is firmly fixed, painless, and apparently very strong Some small overlying nodules of paraffin can be felt in the scalp

Case 2—*Large cranial defect with vertigo and epilepsy from palpation or movement 'Soup bone" implant with apparent perfect result after nearly two years*

M L, man, aged 39 years, Irish cowboy, was brought to the Samaritan Hospital Jan 16 1915, having been picked up unconscious on a trolley car Examination showed a large defect in the skull, and palpation of the area was followed by a generalized convulsion On regaining consciousness the patient gave a history of having been kicked in the back of the head some years previously, following which a craniotomy was performed On standing there was a large cup-shaped depression in the right upper occipitoparietal region and on bending over, the brain bulged through the opening causing great vertigo, or an epileptic convulsion Horseback riding (galloping), pressure over the depressed area, or nervous excitement, likewise incited convulsions The patient therefore was unable to work There is slight deafness of the right ear and marked headache and pain near the right ear and back of the neck Operation was performed Feb 3 1915 under local anesthesia A flap of scalp was raised and the dura and pericranium separated from the edge of the defect A portion of boiled sheep scapula, perforated and trimmed to size, was fixed in the defect by fine chromic gut sutures The implant was contacted with the living bone, the scalp being replaced and sutured without drainage A transient hyperpyrexia, without other symptoms, attributed to alien proteins in the dead bone, followed the operation, after which the patient made a perfect recovery In January, 1917, the patient reported at the hospital as being able to work and free from symptoms

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[3] Mauclaire Presse med July 1914
[4] Muller P Zentralbl. f Chir 1915

"Soup bone" prosthesis seems to be deserving of a trial in the correction of osseous deformities of the face and jaw where fat implantation is not feasible For the correction of saddle nose, defects in the supra-orbital or infra-orbital ridges, depressions in the malar or supramaxillary regions, loss of zygoma and for defects or irregularity of the mandible, the alien bone suitably contoured may be tried In three cases of saddle nose we have introduced this form of dead bone, using portions of the spine of a scapula In each case the alien bone was contacted to living bone, the technic being similar to that which I described before this section in June, 1914,[2] and that later was illustrated by Dr John B Murphy[5]

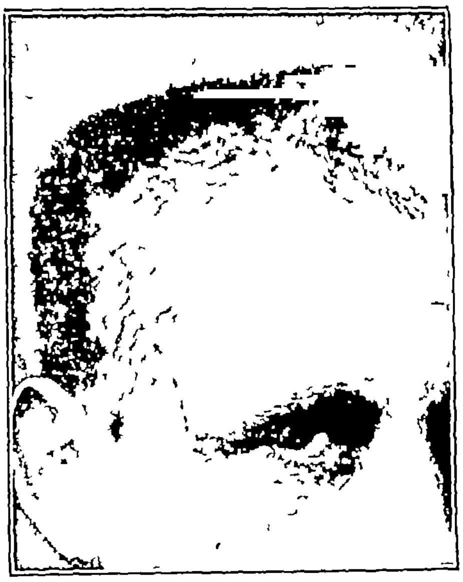

Fig 3 (Case 1)—Photograph after healing had taken place

In inserting implants for saddle nose we have experienced difficulty in securing enough mobility of the skin to raise the bridge of the nose to the required height For this reason it has seemed desirable in certain cases to do the operation in two stages at the first operation introducing the largest implant that can be employed without undue tension of the overlying skin, while at the second operation, performed some months later, another implant is superimposed on the first

Case 3—*Soup bone implant for saddle nose Result maintained after over one year*

A K, woman, aged 25 years, single, with negative family and previous history, developed ocular symptoms at 8 years of age and was treated intermittently with inunctions of mercury for three years At the age of 12 years a perforation developed in the hard palate, and later necrosis of the bones of the nose, leading to saddle nose

Present Condition—Saddle nose with perforation of the hard palate and loss of the right tonsillar pillar The Wassermann test is + Patient was prepared for operation by the use of mixed treatment internally, and salvarsan and neosalvarsan intravenously and intramuscularly Operation Feb 13, 1916, under local anesthesia A vertical incision to the bone was made through a wrinkle line of the forehead, beginning at the frontonasal junction Through the incision the skin was thoroughly separated from the underlying nasal bones by a pair of curved Mayo scissors A portion of the spine of a boiled sheep's scapula was slid down from the forehead under the skin of the nose to correct the defect The implant was contacted with the frontal and nasal bones Some transient redness and inflammatory reaction followed the operation, perhaps due in part to the tension of the overlying skin, but primary union was obtained Fourteen months after the operation the patient reports that she is married and pregnant, and that the implant has caused no trouble

Case 4—*Syphilitic saddle nose Implantation of soup bone Recovery*

M L, girl, aged 18 years, with negative family and previous history, fell, six years ago, and broke (?) her nose, which remained sore, and for this she was treated in the Philadelphia Hospital for five weeks Necrosis occurred which was arrested after one intravenous injection The deformity—a marked saddle nose—has remained The patient was admitted to the Samaritan Hospital, Nov 3, 1915, and on Nov 9, 1915, a wedge-shaped portion from the spinous process of a beef scapula was inserted through a vertical incision in the forehead, and contacted with the frontal and nasal bone as previously described The implant caused considerable tension of the overlying skin, and there was some inflammatory reaction, which gradually subsided under antisyphilitic treatment Primary union was obtained

Case 5—*A syphilitic saddle nose in a child corrected by a soup bone implant Bone not retained*

M R, girl, aged 9 years, white, was admitted to the Samaritan Hospital, Oct 31, 1916, with a history that she had fallen the previous spring and injured the nose The injury was followed by necrosis, and falling of the bridge of the nose, producing a marked saddle-nose deformity Wassermann positive Operation Nov 11, 1916, anesthetic, ether The incision was made in the left wrinkle line of the forehead to the frontal bone, and the skin of the nose raised and separated by blunt dissecting scissors A bit of soup bone was suitably contoured, inserted, under tension and the wound closed by interrupted horse-hair sutures Some edema of the nose with redness followed The patient was discharged Nov 5, 1916 Later suppuration occurred and the alien bone was removed

ABSTRACT OF DISCUSSION

Dr George V I Brown, Milwaukee I have never used soup bones There are a number of interesting questions which arise, however, that I trust Dr Babcock will speak of when the discussion closes For example, it has been said that various implants used for saddle noses, have, in the course of time, absorbed Dr Babcock did make some reference to that, but I should like him to elaborate a little and say what the experience is in that regard Albee of New York, who does wonderful bone implantation work, says it is necessary to have autobone grafts to get results, that the same results are not obtained with any animal grafts

The cases referred to were interesting, inasmuch as there was present a definite factor which could be recognized, but I dare say that two years is hardly a sufficient time on which to base an estimate of the cure I should like to know how long Dr Babcock has had cases in which he has applied this graft, and how long a time his record of cure covers

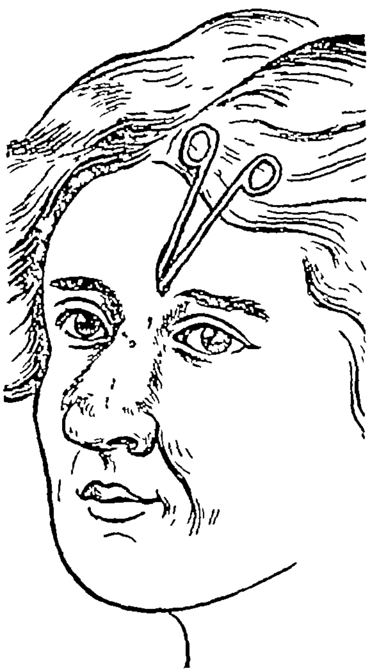

Fig 4—Line of incision for insertion of alien bone in nose

Dr. T W Brophy, Chicago In the raising of broken or flat noses, I have found it possible to get enough soft tissue alongside of the nose, in the muscular tissue, to accomplish the work Even soft tissue will hold out the skin and give the nose a very good appearance

A colored man came to our clinic with a necrosis of the entire mandible I nursed the sequestrum along for months

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5 Murphy, John B Murphy's Clinics, August, 1914

cleaning the parts with antiseptics as thoroughly as possible and there was in time generated a complete new mandible We kept the skeleton or framework of necrotic bone there about which the new bone was formed, and then we removed the sequestrum piece by piece We were obliged to remove small pieces of dead bone An artificial piece, no matter what put in position so as to hold the soft parts in place until the new bone can be generated will prevent the collapse of the chin and prevent the intense facial deformity by holding out the parts until cicatrization is complete, even though new bone be not formed In that way we are able to retain the parts in their proper place and get a very good result The sequestrum serves the same purpose as an artificial piece

Dr. C. B Cortright, Brooklyn In regard to the lacrimal duct, in overcoming the saddle nose deformity is there any distortion and do the tears run down on the face? Is there any marked difference in the cornea?

Dr. W J Younger, Paris Morestin of Paris uses a portion of a floating rib to supply noses I have seen very respectable noses given to the soldiers

Dr. W Wayne Babcock, Philadelphia What happens to the implant, as time goes on? We can simply refer to what we have seen in two years With bits of firm material like ivory that have been embedded, we have found, in a few months, signs of marked absorption We have been able to watch a subcutaneously imposed bone and find in two years no evidences at all of its absorption Whether it will be absorbed in time we cannot say

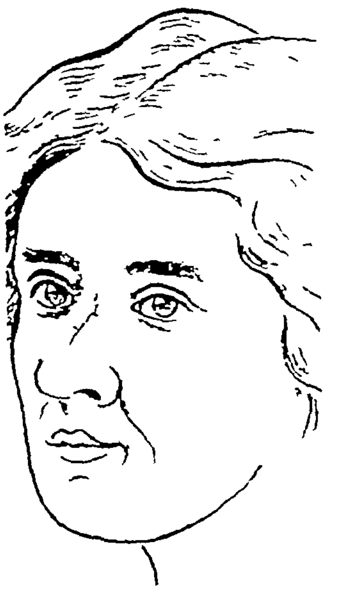

Fig 2—Method of preparing pocket for insertion of alien bone in nose.

The subject of bone regeneration and transplantation does not seem to be absolutely settled Some one settles it for a few months and then some one else further experiments and upsets the matter John B Murphy felt sure that transplanted bone would be compacted with other living bone and that there would grow into the canals of the transplanted bone new blood vessels from the bone with which it was placed in contact. Others have claimed that this is not so and have tried to prove it, and yet there is much to indicate that there is a big germ of truth in Murphy s idea Some believe the periosteum has nothing to do with bone regeneration, and have shown by many experiments, where the periosteum of the lower jaw has been scraped down, that bone does not generate The periosteum may be a limiting medium, and yet, on the other hand there is ground for the belief that there is an inner layer of cells which may have something important to do with bone regeneration Will a dead bone serve as a scaffolding? We do not believe dead bone remains as dead bone in the tissues but if it can stimulate bone with which it is in contact to send into its porous structure new blood vessels and can replace this alien bone by living *material* of an osseous or sufficiently firm nature to give a support and contour to the skull, then we have accomplished all that we wanted to accomplish. It is not that we want to keep the soup bone in the patient s head but to fill up the defect with something that will take the place of what was lost and correct the deformity In the skull evidently conditions are better than in the face although the skull does not reform bones as do other bones of the body After fractures of the skull we do not have secondary callus forma*tion, and* we do not have in gaps of the skull much regeneration or replacement A saddle nose as Brown has suggested is a different problem It occurs in a syphilitic, and we know how hard it is sometimes to stop the progress of a necrosis which leads to saddle nose, and even with our best treatment we sometimes cannot arrest the process A patient I know of has had twenty-six injections of salvarsan and yet returns a positive Wassermann When we put in a dead substance in such patients we tax the tissues and there is considerable chance that the irritation will do harm

The same condition obtains when we transplant from the rib, from the costal cartilage, or from the tibia Some transplants are retained, and some are expelled, and we think it likely, in answer to Brown s question, that some of these bits of dead bone that we put in will likewise be absorbed, if they are not expelled and yet the fact that we have retained for two years in one of our patients a mass which appears to be bone, makes us feel that this is worth trying

In none of the cases in which we have implanted have we observed any serious trouble The tissue about the cornea gives us the least trouble It is relatively elastic, it is the firm tissue over the bridge of the nose that gives us more trouble We have difficulty in raising it up to the point where it should be if we separate the tissues from the nose and cheek

THE RESECTION OF LOBES OF THE LUNG*

SAMUEL ROBINSON, M D
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ROCHESTER, MINN

Large portions of the lung may be removed from the normal animal with ease and without danger This is by no means true in case of the sick man afflicted with chronic pulmonary disease He is generally septic, his resistance is low, his bronchial tree is flooded with a profuse purulent secretion He is moderately cyanotic His blood color is low The diseased lung lobes are firmly adherent to each other and to the diaphragm and the pericardium The hilum of each lobe is inaccessible The main lobe bronchus is generally thickened and diseased and unadapted to the technic of closure so successful in animals The respiratory function and more particularly the circulatory mechanism are distinctly upset by operations for lung resection The right heart labors in the early postoperative stage to adapt itself to the added demands on the pulmonary circulation The sound lung labors to accomplish the work of two This it cannot do when the embarrassed right ventricle fails to supply it with blood to be oxygenated At best the convalescence following operation is both hectic and long There is much suffering The end-result may be only a partial cure Later plastic operations are generally necessary to obliterate the pleural cavity and to repair bronchial leakage

Let no man suppose, therefore, that removal of lobes of the lung is a trivial performance Those of us who are pretentious enough to disclose our experiences in this regard do so more with apologies for our incompetence than with boasts of our success

The indications for lobectomy are few, but these *must* be specific Chronic, nontuberculous lung abscess and bronchiectasis are at the present writing the only diseases to which such radical procedure should be applied, and then only in selected instances

One lung must be absolutely sound The disease must be confined to one lobe, or at least one lobe and the adjacent portion of an adjoining lobe There must be an absence of active tuberculosis The heart must be a normal one There must be complete absence of any systemic or organic disease The individual should be under 35 years of age, certainly not over 45 There must be evidence that all nonoperative methods have failed or are obviously bound to fail There should be ample evidence that the existing pulmonary infection is not one that might be cured or relieved by direct drainage of the lung

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* From the Division of Surgery of the Mayo Clinic.

* Read before the Section on Surgery General and Abdominal, at the Sixty Eighth Annual Session of the American Medical Association, New York June 1917

Given a young adult patient with chronic abscess or bronchiectasis confined to one or one and one half lobes of one lung, whose resistance is not too low and in whom palliative treatment or drainage operations would obviously fail, lung resection may be considered Nor should the patient be kept in ignorance of the dangers and discomfort associated with the procedure which you may propose to undertake If all indications have been carefully studied and verified, the patient may properly be instructed that he may entertain no hope of cure without operation, that his existence will be a lingering and disgustingly offensive one both to himself and his associates, and that this existence will be of comparatively brief duration Then it must be explained that the chances of relief or cure by the surgical alternative are between 60 and 70 per cent If when thus informed the patient decides, after due consideration, to undergo operation, lung resection is justifiable

I have employed a different technic in lung resection from that which we have all adopted in animals, and different from that employed in man by other surgeons It consists in a several-stage operation with a multiple rib-resection exposure rather than a single operation with a wide intercostal exposure I have argued that the division into stages reduces the insult to the respiratory and circulatory systems, that the intrapleural pressure is more gradually altered and the pulmonary circulation less suddenly overworked in the several-stage rib-resection method than in the single operation through an intercostal opening I have been of the opinion that while these disturbances are equally well cared for during operation, the dangers associated with them in the first twenty-four hours after operation by the one-stage method are obviated by the several-stage operation

FIRST STAGE

Neither differential pressure nor intratracheal insufflation has been used in this series, nor has their omission been regretted The incision is crescentic, with its convexity downward, starting at the fifth rib two inches from the vertebral column, crossing the eighth rib in the scapular line, and terminating at the level of the sixth rib in the mammary line

The skin and fat are dissected upward from the muscle for an inch Vessels are clamped and tied The latissimus muscle fibers are separated vertically to admit long-bladed curved muscle clamps, which are applied in series above and below in the direction of the sternum and again toward the vertebral end of the wound The muscle fibers are then divided transversely between the clamps

The field thus exposed should permit the subperiosteal resection of the seventh, eighth, and ninth ribs from their angles to the anterior axillary line The intercostal bundles are then ligated and removed The skin and muscle flap is then replaced The wound is closed tight The thoracic window has been made ready to open The chest-wall collapse necessary for the subsequent obliteration of the space left after amputation of the lower lobe is provided Something has been learned of the individual's resistance to surgical trauma, and of his tolerance of anesthesia

SECOND STAGE

The interval prior to the second stage should be approximately a week in length The power of expelling sputum should have been restored, all trace of shock should have disappeared, and the temperature should approach "normal"

The skin stitches are removed, the scapula and flaps retracted, and the pleura again inspected It will be found that in the upper part of the exposed field there are new pleural adhesions anchoring the upper lobe The lower lobe is still adherent at various places, now somewhat retracted and purple red in color The pleura is opened wide at any point whether adherent or not There will be no particular change in respiration or pulse

The separating of adhesions necessary to deliver the lower lobe is generally irksome It is the difficult part of the operation The lower lobe is generally bound to the diaphragm and costodiaphragmatic angle by tough, unyielding bands which may not yield under digital pressure If undue force is used in stripping, the lung surface will tear before the adhesion gives way Some of these should be cut It is well, therefore, to free the lobe first from all except its diaphragmatic attachments, so that if bleeding occurs during the separation of the latter a clamp may be applied temporarily in the region of the lobe hilum The interlobar fissure does not always provide a simple cleavage, nor is it advisable to employ too much force in this region lest the light adhesions be parted which by now should be holding the upper or middle lobes to the parietes The pericardial surface is least troublesome of all

To stop the operation at the middle of the second stage and to defer the completion of adhesion-stripping and the amputation to a third stage is a conservative measure not to be regretted, and one which in difficult cases may save the patient from undue hemorrhage, shock, and carbon dioxid poisoning

AMPUTATION

If there has been no occasion to close the second stage prior to the complete delivery of the lower lobe, amputation is promptly performed as follows A long curved clamp is applied to the root and closed to the last notch The lobe is then amputated at least a half inch distal to the clamp The veins, arteries and bronchi are then picked up separately and ligated with No 2 chromic catgut A mass ligature of kangaroo tendon or braided silk is then placed just proximal to the clamp and tied as the clamp is slowly released, the ligature being guided into the crushed area evacuated by the clamp Not infrequently two clamps are necessary safely to include the whole stump It is apparently an equally satisfactory method to leave the root clamps in situ and to remove them on the seventh day

Both of these methods of amputation result invariably in subsequent leakage of the bronchial stump The portion distal to the mass ligature or clamps, sloughs away within a week or ten days, leaving one, two or three fistulous openings of small caliber Experience will prove whether or not it is expedient to attempt any special technic for hermetically closing the bronchus at the time of amputation The bronchus at the point of division is generally dilated, its walls are thick tough, and unyielding It is probably not amenable to such treatment as invagination and end-suturing, which has been successful in normal animals If treatment of this kind were attempted it would necessitate the isolation of the bronchus from the vessels in the hilum, the individual double ligation of the vessels before their division, and the crushing division, cauterization, invagination, and suturing of the bronchus Neither the clamp nor mass ligation could be employed In the present period of undeveloped surgery of the diseased lung it would seem more proper not to sacrifice time at the end of a critical operation by any finesse in the treatment of the bronchial stump, which in its pathologic condition would stubbornly resist any technic of closure

The minute fistulas consequent on the clamp and mass ligature technic in no way complicate the convalescence The pleural space is rapidly obliterated, the fistulas remaining the only unhealed points in the wound By local plastic surgery under local anesthesia the fistulas are closed later by the superimposing of a skin-and-fat flap

The after-treatment of the second operation is simple Bronchial secretion is no longer a cause of anxiety Within the first two days the bronchial tree becomes free from the residue emptied into it from the lower lobe just previous to its removal

With return of consciousness the patient discovers that the promised reward of his long siege of treatment is now a reality The sudden freedom from a cough of perhaps ten years' duration is a stimulus mentally and a boon physically

The pack is not disturbed for four days, by which time it is foul At least two thirds of it can then be removed painlessly When firmly adherent to the raw surfaces of the parietal pleura, fragments of the gauze should be left till they have sloughed away Again, precaution is taken at each dressing to repack the persisting pleural space completely lest pocketing occur in the costodiaphragmatic angle or about the pericardium or posteriorly below the lower limits of the neighboring lobe At no time in the convalescence should drainage-tubes be substituted for gauze The skin opening has been so designed that it will not close until the cavity is obliterated Irrigation is never indicated Granulations may be stimulated with balsam of Peru The pleural space remaining after excision of the lower lobe, having been already diminished by the shrinkage of fibrosis attendant on the first two stages, may now be obliterated within four months The patient meanwhile attains a body weight equal to his previous maximum, and this continues to increase rapidly during the months following closure of the wound

ABSTRACT OF DISCUSSION

Dr. Howard Lilienthal, New York My operations have not been performed by the method which Dr Robinson has described, although after a talk with him I was sufficiently convinced of the desirability of the principle of preliminary lung fixation by artificial adhesion to the costal pleura that in three cases I attempted a modification of his method In only one of the three was I able to carry out both steps, and this patient died of sepsis ten days after the second operation These cases will all be reported at a later date.

In speaking of the operations for lung abscess, I refer here only to those in which an attempt was made to extirpate the diseased lobe. In my first seven cases, operated on by the one stage method, four patients were cured and have remained well

It is conceded that nothing short of resection will actually cure these patients Drainage operations are usually futile, and at best are followed by more or less improvement, but not by cure I believe that the one stage method has the great advantage of doing away at once with the pus-forming focus so that the danger of postoperative *pneumonia on* account of the inability of the patient to cough up the purulent secretion is minimized By operating between the ribs, with or without additional rib section—but not resection—to gain sufficient room, the contour of the chest is not disturbed and such deformity as exists is invisible without the use of the Roentgen ray, because instead of the filling in of the dead space by collapsed areas of the chest wall, the space is filled in by the rising of the abdominal viscera which push the diaphragm into the thoracic cavity We therefore have a resulting symmetry of the skeletal parts and the functions of the chest more nearly approach the normal than they can after a multiple rib resection

The method which I adopted in trying to secure a safe two-stage operation was to make a long intercostal incision, separate the ribs, paint the surfaces of the visceral pleura covering the healthy part of the lung and the adjacent parietal pleura with tincture of iodin Then expanding the lungs with intrapharyngeal pressure, the chest wound is closed by suture In one of my cases, the only one in which it was possible to perform the second stage, I found good adhesions, so that on opening the chest for the second stage there was no collapse of the lung I could then resect the lobe, the right upper one with very little shock, but unfortunately a serious local infection occurred and the patient finally died of pneumonia of the opposite lung

In a suitable case I shall be glad to try this plan again At the same time I must say that my best successes, four cures in seven cases followed the one-stage operation performed through an intercostal space without rib resection Two of these patients had their right lower lobes resected and two the middle lobes Another patient who is convalescent after nearly two months, but who still has a large cavity to be obliterated later on survives after the extirpation in one stage of the right lower and middle lobes This patient developed an anaerobic infection after his operation and was near death's door For forty-eight hours I permitted a slow stream of oxygen gas to flow through his thoracic cavity and the *anaerobic infection* was overcome

The principal differences, then, between Dr Robinson's method and my own are, first, that I prefer not to resect ribs but to operate between them, second, by removing the suppurating focus at the first stage, the cough at once ceases and the danger of pneumonia from that source is overcome

Dr. Willy Meyer New York One of the principal points brought out by Dr Robinson is the careful selection of these cases for operation Unilateral bronchiectasis of one lower lobe certainly is the most favorable for extirpation Among my five cases of attempted lobectomy, only one, the first, had inferior lobe affection (1910), in two, both lobes (left lung) were involved, in two others the upper lobe alone was diseased

In animal experimentation lobectomy is simple. The lobes are differentiated and easily pedicled The bronchial stump, after crushing can be inverted and safely stitched We saved seventeen of twenty-one dogs thus operated on The lobes of the inflamed human lung form a unit One cannot so easily get into the interlobar space Pathologic conditions render isolation of the bronchus and ligation of the concomitant vessels unsafe and impracticable We must therefore treat the pedicle of the lung, as, for instance, that of a suppurating kidney namely ligate it "*en masse*," and provide for the reopening of the bronchus stump in after-treatment

Dr Robinson spoke principally of operations in advanced cases I would say a word on the treatment of earlier cases Bronchiectasis usually follows pneumonia and aspiration of blood (tonsillectomy, adenoids) In one case of the latter type (girl), all lobes of one side were affected Regular irrigation of its bronchial system brought great improvement

(Yankauer) In two cases pneumotomy brought permanent relief After incision we could see the irregular bronchial distention, which the finger tip palpated Increased ventilation of these cavities can do away with the very foul odor (three observations) Irrigation with oxygen assists

In advanced cases the stage operation may have advantage I tried it once, the entire left lung being involved Aspiration pneumonia took the patient's life on the third day Surgeons interested in this subject should have a large amount of material to select from Evolution would then be quicker

Two methods seem destined to improve results thoracotomy under regional anesthesia and postoperative drainage Regarding the latter, Kenyon's method seems best. In one of my cases (two-stage operation), more than two quarts drained off in sixty hours We are just trying to develop its technic for the various types of intrathoracic operations (six cases)

It seems wise to enter the thorax without a fixed program Findings must dictate the required operation as in abdominal surgery Conservative surgery can bring great relief, when radical surgery may take the patient's life

Dr Samuel Robinson, Rochester, Minn It is a great consolation to find that I am laboring over a subject in harmony with others who are struggling with the same obstacles, and I have been most fortunate in finding both Dr Willy Meyer and Dr Lilienthal cordially cooperative in their attitude They are quite as willing to make certain departures from a fixed intercostal technic as I am ready to abandon any one of the features in the several-stage rib-section technic which I have employed, provided by such compromises we can collectively reduce the mortality in these serious operations

Dr Lilienthal has just stated that he has performed nine lung resections with four deaths, a mortality of 45 per cent My own series includes seven resections with three deaths, a mortality of 43 per cent. From these confessions two things are obvious First, that the mortality is high, and second, that the technic of either one method or the other must be materially changed before any degree of perfection is reached In fact, it is my opinion that we shall eventually adopt some entirely new feature in technic

I am conducting a series of experiments to discover the most suitable method of artificially producing adhesions of that portion of the lung which is not to be removed I am employing different astringents for this purpose, injecting them at various points through the tissues of the thoracic wall If one lobe can thus be anchored so that it remains in position during resection of the other lobe or lobes, the chief obstacles to successful lobectomy will be removed

Diet in Typhoid and Paratyphoid Fevers—In a recent work on typhoid Vincent and Muratet state that in France milk is the great reliance in feeding typhoid and paratyphoid patients The milk is always boiled for ten minutes at least, giving up to 2 liters with at least 2 liters of other fluid The milk can be given hot or cold, and flavored with tea, coffee, brandy or rum, vanilla, orange flower water, or a drop of oil of anise to a cup of milk, or the milk can be made acid or effervescent In case of absolute intolerance for milk, kefir or koumiss may be substituted, or a strained vegetable broth or gruel For the latter they use a mixture of a tablespoonful each of barley, wheat, crushed corn and hulled beans, peas and lentils, boiled for three hours in 3 liters of water, salted and strained Every hour or half hour a glass or half glass should be given of weak tea, coffee, lemonade with or without wine, or weak diuretic decoctions (dandelion, licorice, cherry stems) To avoid fermentation these drinks should not be much sweetened, lactose can be used, on account of its diuretic action, instead of sugar The patient should drink often, but little at a time and slowly Robin gives, in addition to the above, a liter of chicken or veal broth in the twenty-four hours Chantemesse prefers to give two or three tablespoonfuls of meat juice, the amount that can be squeezed from 200 gm of chopped meat The first solid food allowed is a light tapioca

THE POSSIBLE APPLICATION OF THE MACROSCOPIC SLIDE AGGLUTINATION

IN THE SEARCH FOR MENINGOCOCCUS CARRIERS*

CHARLES KRUMWIEDE, JR, MD
NEW YORK

The methods at present employed — the streaking of plates to obtain discrete colonies, the subculturing of suspicious colonies and the examination of these cultures in smear with the Gram stain and the determination of their agglutinative properties in one or more serums — as well as further subcultures, as frequently done, to determine the fermentative reaction of suspected strains, makes the examination of many carrier suspects extremely laborious The removal of the necessity of any one of the latter steps would result in a great saving of time, labor and materials

In the methods we employ for typhoid-paratyphoid identification of suspected colonies from feces, the use of the macroscopic slide agglutination has been such a time saving procedure that we were led to try this method with meningococcus colonies on plates and with the growth on slant agar mediums With sufficiently developed colonies or with traces of growth from slant mediums, a prompt agglutination results with the curative serums obtained from the horse, found by previous tests to have a high content of agglutinins, that is, a high titer and a broad range of action on various representative strains

Two such serums have been tested with a 1 10 dilution of normal horse serum as a control and a 1 10 dilution of the immune serums for agglutination Both immune serums gave immediate agglutination with over sixty strains, representative of the great majority of strains likely to be encountered In a few instances out of the total number of cultures, slight clumping was present in the control normal serum, but this was not due to the serum, as the same result was noted with saline solution In fact, eight other normal horse serums showed no action on six representative strains when used in a dilution of 1 10

Even in these instances, in which slight clumping occurred in the control, the immune serum result was so marked as to leave no question as to the specific agglutination of the meningococci

Higher dilutions were employed and fairly good results were obtained with a dilution of 1 25, although with some strains the size of the clumps was lessened and some delay in the reaction resulted A 1 50 dilution gave in general unsatisfactory results Naturally the dilution applicable would have to be determined for each serum by testing it against a series of representative strains The method is to place a row of small drops of the dilution of the normal horse serum and another row of drops of the dilution of the immune serum, on a slide The growth from the suspected colony or a trace from slant mediums is then taken up with a small loop and rubbed first in the normal and then in the immune serum without burning the loop between, till sufficient growth is rubbed off to give a slight turbidity The reaction in the immune serum is evidenced by the immediate or prompt development of plain visible clumps

The method is reported in this unfinished form because of its time and labor saving possibilities It has just begun to be used in the actual search for carriers It seems a most promising method for the rapid survey of suspicious colonies or of subcultures or both

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*From Bureau of Laboratories, Department of Health, New York City

As to subculture mediums, we have tried various carbohydrate combinations Of these a serum-water agar containing 1 per cent of lactose and 1 per cent of saccharose and 1 per cent of the Andrade indicator with the reaction set to this indicator seems to be the most promising for exclusion of the mouth cocci, the majority of which ferment one or both of these carbohydrates

The applicability of the slide reaction as well as its value as a final identification method can be determined only in actual practice Several factors will have to be determined first, possible meningococcus strains not influenced by the serums used, second, the possibility of spontaneous agglutination among strains fresh from the human body, and third, false positive reactions due to the action of normal or group agglutinins on bacteria other than meningococci If the case strains, however, are available and agglutinate well, this would raise a strong presumption that the strains from contacts which do not agglutinate could be excluded from consideration Should a negative reaction be found reliable, but false positives be found, even then the time and labor saved would be very great If the method is found to be of value, it is suggested that a central laboratory undertake to reserve for this purpose, serums showing the combination of the highest obtainable agglutinative titer as well as the widest possible strain range and have it available for call, labeled with dilution to be used The amount required would not be large, as the dilutions need not be freshly made every day, and probably if kept in the refrigerator would remain fully active for a week or longer

The serum drops with culture added, if allowed to dry, have as far as tried served as satisfactory smears for the Gram strain, thus avoiding the necessity of making extra smears for morphologic examination It is probable that the agglutination result could be sufficiently checked by finding, on morphologic examination of the smear, typical gram-negative cocci showing the characteristic irregularity in size and intensity of staining ("autolysis") if a check is found necessary to exclude false reactions due to other bacteria

Besides the application in identification, possibly the slide agglutination may find application as a simple method of testing the serum employed in treating a case against the case strain This could be done within from eighteen to twenty-four hours of seeing the case and might serve not only as a check on the therapeutic action of the serum but might also give an easy method of determining the incidence of strains acted on by the serum, thus aligning them with the standard strains employed in immunizing the horses Should a strain not be influenced it might then with further experience indicate the advisability of obtaining other serums to select one showing such activity if procurable A simple test would be more apt to result in the submission of aberrant strains so that they could be fully studied in relation to the problem of making the curative as effective as possible against the great majority if not all of the strains encountered

NOTE ON PLATING MEDIUMS

Dr William H Park has just returned from Europe, and has brought a note from Gordon on a simple method for preparing a blood solution to be added to agar for growth enrichment As this method is not included in the paper of Gordon, Hine and Flack,[1] he suggested that it be noted here The blood is obtained under aseptic precautions by bleeding a rabbit from the carotid directly into 50 c c of 5 per cent citrate in physiologic sodium chlorid solution This is then diluted with physiologic sodium chlorid solution to give a content of 5 per cent of rabbit's blood Ether (10 per cent) is then added and the whole shaken and allowed to sediment for twenty-four hours The clear (hemolyzed blood) fluid is then drawn off and bottled, a little excess of ether being added to each bottle Four c c of this blood is added to each bottle of agar after melting and cooling to 50 C Each bottle of agar evidently means 200 c c, as the reference quoted above states that this is the sized container of agar distributed from the central laboratory Each time the bottle of blood is opened, a few drops of ether should be added before replacing the stopper Of all the agar preparations used, that prepared from a trypsin broth from fresh ox hearts has been most satisfactory The method of preparation is given by Gordon, Hine and Flack [1]

SODIUM CITRATE BLOOD TRANSFUSION

A COMPARISON *

BERTRAM M BERNHEIM, M D

BALTIMORE

The subject of blood transfusion has occupied the attention of medical men for a number of years and has been discussed at recent meetings of this association with increasing interest as the therapeutic importance of the procedure has become more generally recognized Carried out at first only at rare intervals, and with fear and trepidation, because of its formidable operative difficulties, simplification of technic became the order of the day as the desirability of blood transfer from one individual to another became more apparent until, far from being an extraordinary procedure, blood transfusion has gradually become an everyday occurrence in the activities of most large hospitals

Even so, until recently there remained difficulties in transfusion work of such nature that a high order of skill and a peculiar technical familiarity were required in order to achieve the best and most far-reaching results—and this in spite of the many brilliantly conceived and executed mechanical devices Chief of these difficulties was the persistent tendency of the blood to clot, so that it came to be generally agreed that no method of transfusion could be finally satisfactory unless this element of coagulation should be entirely eliminated Until the recent work of Hustin, Lewisohn, Weil and Agote, this desideratum seemed to be far in the future

These workers, independently of each other, demonstrated that blood could be inhibited from coagulating for many hours, even as long as forty-eight hours, by mixing with it sodium citrate, and by animal experimentation, they further showed that if the dosage of the drug were carefully controlled, citrated blood could safely be used for transfusion purposes The fact that sodium citrate, and other chemicals, such as the oxalates, had long been known to scientists as possessing the property of retarding blood coagulation, detracts no whit from their work, since the drugs previously had been considered of such toxic nature as to render them unfit for human usage I dare say that no set of experiments in recent years has been so productive of revolutionary changes in a single procedure and of more far-reaching results than have those of Dr Lewisohn in which he worked out on animals the exact dose of sodium citrate that might be used with safety in carrying out blood transfusion in the human body

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[1] Gordon M H Hine, T G M and Flack M Cultural Requirements of Meningococcus Brit. Med Jour 1916 2, 678 abstr THE JOURNAL A. M A. Dec. 23 1916 p 1972

* Read before the Section on Surgery General and Abdominal at the Sixty Eighth Annual Session of the American Medical Association, New York, June 1917

But it was not sufficient to procure a noncoagulable blood It was necessary to prove that citrated blood possessed powers of benefit equal to those of whole untreated blood, for by the time this new method had been developed, a sufficient number of successful whole blood transfusions had been recorded to give rise to reasonable demands for favorable results Unfortunately, certain early misdirected applications of the new method ended disastrously, and cast a doubt on the method that retarded its adoption, but its inherent simplicity and many attractive features were sufficiently apparent to those most familiar with work of this nature to insure its ultimate general use

To be able to remove blood from the veins of one individual and carry it in a flask to the bedside of another, many miles distant, maybe, and in a leisurely manner to introduce it into his veins with no more disturbance than would be required in giving ordinary intravenous salt solution, is no mean advantage To be able to relieve the timid patient and the anxious relative from the necessity of going to the operating room and lying side-by-side while the blood of one flows or is syringed into the veins of the other is highly to be desired What a boon it is to the patient, shocked and bleeding from any one of the various causes of hemorrhage, to receive into his veins life-saving blood without having to be moved from his bed or even turned! Are there any among us who have not seen certain of these unfortunates suddenly expire during transport, even in their beds, to the operating room? And in those instances of transfusion in septic conditions—of which typhoid fever is a type—the citrate method absolutely removes all possibility of infecting the donor These and other minor advantages give to the method of sodium citrate blood transfusion a degree of elasticity not approached by any other Even if the action of citrated blood were less beneficial than whole, untreated blood, these advantageous characteristics of the new method would be of important consideration, but we are additionally fortunate in being able to state that there is little if any difference at all In making this assertion, which will be supported by definite case reports, I may be permitted to say that, having had a certain share in the present day development of blood transfusion and having devised certain instruments for the transfer of whole untreated blood, I have been, in the nature of things, a harsh critic of the sodium citrate method, but so convinced am I of its tremendous superiority over all others, that for the last year it has been my method of choice, and I have used it in practically every case that has come under my care

If we eliminate errors of technic whereby an inexpert operator may add too small an amount of citrate to the volume of blood withdrawn, with the result that coagulation sets in before the blood can be given to the patient, there is only one unpleasant phase of citrate transfusion that is not so frequently encountered in dealing with whole blood, namely, the occurrence of a chill and fever following the blood introduction In my experience a chill of an intensity varying from a slight sensation of cold to a terrific shivering and shaking occurs about twenty or thirty minutes after the blood introduction in about 22 per cent of sodium citrate transfusions During this reaction the temperature may abruptly rise as high as 104 or 105 F, and as abruptly fall to or below normal The whole phenomenon is over in three or four hours, and the patient shows little or no ill effects from it A few patients have been rather upset and nervous for a half day, but the majority have only the recollection of a bad hour or two I have never seen more than a single chill after a transfusion, and I have never noticed the slightest harmful effect on the future course of the illness or the progress of the patient Never has there been the slightest hemoglobinuria produced as a result of the chill In practically every one of my cases most careful preliminary tests have been made by men peculiarly skilled in this work and perfectly matched donors have been selected with the purpose of avoiding this chill—all unavailing from this point of view It occurs in spite of the tests, and, unless it is due to the chemical itself, its etiology is as obscure to me as its occurrence is without significance other than inconvenience to the patient In this, then, the citrate transfusion differs from the whole blood transfusion, by which method my cases show that only 2 per cent experience chills The occurrence of this citrate chill, though, must not be regarded too seriously, since it must be remembered that the same phenomenon may follow the intravenous introduction of the ordinary isotonic salt solution

The occurrence is unfortunate, especially because it cannot be predicted, and one can readily see good reasons for hesitating to subject a patient, shocked and almost moribund, to the possibility of an added trial of this nature It has been suggested that an extremely slow introduction of the blood might avoid the chill by allowing the body time and opportunity to take up and eliminate the sodium citrate (the work of Salant and Wise would suggest this) but I have known it to follow after the slowest kind of transfusion, and fail to follow after an introduction of 500 c c of blood covering only seven minutes Others have thought that the temperature of the blood may influence its occurrence but my experience fails to reveal any such cause After I had watched a very ill patient recover without any untoward effect from the chill and had seen others escape it entirely, my early hesitancy to adopt the method disappeared and I now disregard this feature entirely I really believe that even the extremely ill patients will not be harmed if it occurs, because it comes practically always after the transfusion is completed, and the dose of blood given will amply fortify them against the shocking effects of a possible chill I have had only one case of chill during transfusion, and this does not offer a fair example, since it was an emergency of such dire necessity that preliminary tests could not be made The chill, therefore, might have been due in part or altogether to blood incompatibilities

My series of sodium citrate transfusions comprises forty-five consecutive cases and embraces a wide variety of conditions The ages of the patients varied from an infant of 8 days to a woman of 61 years, and both sexes had full representation, although the majority of patients were women There were no deaths directly attributable to the transfusion, although death followed ten minutes after the blood introduction in one instance, and about an hour and half later in the two others Two of the patients were unconscious and moribund at the time, and absolutely beyond the aid of transfusion or anything else, but, as occasionally happens in work of this nature, conditions peculiar to the case demanded measures of last resort even in the face of certain defeat The first mentioned case was so hurried that blood tests could not be made The second case was unavoidably delayed and the third patient died of hemorrhage in no way connected with the transfusion In all other cases the beneficent influence of fresh citrated blood was as obvious as we were wont to experience when using whole untreated blood

It might be thought that if sodium citrate prevents blood coagulation outside the body, a similar influence might be exerted in vivo and with disastrous results, but the contrary is the case For example, late one night I was called to see a little baby, 8 days old, who had had a ritual circumcision done some ten hours previously There was a well-recognized family history of hemophilia, so after making every effort to stop the bleeding by ordinary surgical measures without success, I did a transfusion of 55 c c of citrated blood from father to child In order to make doubly sure, I also dressed the child's penis in a gauze sponge soaked in the same citrated blood The bleeding ceased immediately and the child made an uninterrupted recovery

It has been well known, of course, that transfusion of whole blood usually acts as a specific in cases of this sort It now appears that citrated blood is equally efficacious in the condition But to illustrate its effectiveness in other states of active bleeding, I might say that in one case of bleeding gastric ulcer, and in another case of bleeding duodenal ulcer, a single citrate transfusion of 500 c c of blood in each instance effected a prompt and permanent cessation Both patients were pouring out tremendous quantities of blood and were rapidly sinking at the time of the transfusion, six doses of horse serum having been administered to the patient with duodenal ulcer without the slightest beneficial effect In still another form of active bleeding, in a most obscure case of a young girl apparently suffering from an intestinal type of purpura, a citrate transfusion returned to life an all but moribund patient Her intestinal bleeding did not entirely cease, but the great outpourings of thin, watery blood were checked and a condition of hopefulness supervened on one of despair Indeed, this case taught many lessons in the art of transfusion and afforded a rare opportunity to study the citrate method and to compare it with the whole blood method Twelve transfusions in all were carried out on this patient during a period of three months—and with a most happy result The first one, a citrate transfusion, did a tremendous amount of good, but we thought that subsequent citrate transfusions were not quite so effective We tried whole untreated blood twice, but the results were no better so far as totally checking the bleeding was concerned, although the absence of chill was an advantage However, since several of the citrate transfusions had been unaccompanied by this phenomenon, we felt justified in going back to this method, because of its greater ease of accomplishment

This case will be reported in detail at another time in collaboration with Drs Baetjer, Miller and Burnam, but it might be mentioned here that we had occasion to use a certain donor twice, both times by the citrate method, and were surprised to find that his blood gave rise to no reaction at all the first time, while a severe chill followed the second introduction Equal amounts of blood were used both times, the technic was precisely the same in all details, and the patient's condition was about the same, although one transfusion had intervened between the two from this man, which were twelve days apart

Aside from cases of actual bleeding, citrate transfusions have been used in several cases of secondary anemia with success equal to that of whole blood One case was that of a woman, quite anemic from the prolonged gradual ooze of an ulcerated malignant growth of the uterus Five hundred c c of citrated blood permitted her to withstand a radical operation without difficulty Another instance was that of a man that had undergone a partial resection of the stomach for carcinoma In bad condition before operation, his postoperative course was stormy, his abdominal wound broke open and showed no tendency to heal, he became progressively weaker, markedly anemic, and two weeks after operation was running a definite septic temperature Unable to eat, dreadfully pale, his skin cold and clammy, hemoglobin registering but 22 per cent, this man presented the forlorn, despondent picture of one absolutely lost Two transfusions of citrated blood at eight day intervals brought about a marked improvement, and the man walked out of the ward within three weeks able once again to take up his daily activities In still another case, a citrate transfusion prior to and during operation permitted the removal of a ruptured kidney from a little boy who had been almost exsanguinated by the torn organ

Quite recently, an unusual opportunity to compare the efficacy of whole blodd and citrated blood presented itself The case was that of a woman suffering from pernicious anemia, who had undergone early in 1916 three transfusions of whole blood and a splenectomy She had left the hospital in very good condition and continued to be well for about eight months, when a relapse had set in Unwilling to take the advice of her physician and have a supportive dose of blood, she gradually lost ground until she had a blood count of 1,331,000 red cells and 25 per cent hemoglobin, at which time she consented to a transfusion Having had experience with the whole blood method, she insisted that this should be used She was given 500 c c of blood, and the count made two days later revealed 2,080,000 red cells and 35 per cent hemoglobin

I then persuaded her to permit me to use the citrate method for the second transfusion, which was done three days after the first, 500 c c of blood being given without the slightest sign of a chill or other discomfort Three days later her count was 2,450,800 red cells and 45 per cent hemoglobin, and a few days after this her red cells registered so high (3,700,000 and hemoglobin 55 per cent) that the resident physician ordered the count verified This case (and I have had others of a like nature) therefore demonstrates that citrated blood exerts as much influence on the blood forming organs as does whole blood

I could cite details of other cases, but they would be only a rehearsal of those already mentioned The upbuilding process in pernicious anemia is just as efficiently started by this method as by the whole blood, the combating of immediate postoperative hemorrhage and shock is likewise successfully carried out, and all cases are handled with *surprisingly little* discomfort to the patient It is not even necessary for the patient to know that he is receiving blood (since a towel can be wrapped around the containing flask leaving the impression that the ordinary intravenous salt solution is being given Finally, I have used citrated blood in amounts exactly corresponding to whole blood transfusions, the exact amount in a given case depending solely on the age of the patient, his condition, the amount of blood lost (if in a hemorrhage) and the purpose of the transfusion The smallest amount given has been 55 c c to an infant 10 days old, the largest 1,000 c c to a woman exsanguinated from uncontrollable uterine bleeding In several instances, with the patient under ether I have slowly injected sufficient blood to carry him through operation And just recently I gave two transfusions to a little 22-month-old boy who was unconscious and thought to be dying from an anemia consequent on an unusually septic pneumonic process The transfusions were given two days apart, the dose of the first being 140 c c and that of the second, 220 c c, a tremendous dose for so young a child No chill or other disturbance resulted from either transfusion, and the child was tided over an unusually critical period of his illness

I, therefore, feel that a careful consideration of the foregoing pages will convince even the most skeptical that a tremendous advance was made when the method of sodium citrate blood transfusion became a reality And those workers who had a share in perfecting it—Drs Hustin, Weil, Argote, and especially Dr Lewisohn—deserve the thanks and congratulations of us all

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ABSTRACT OF DISCUSSION

Dr George I Miller, Brooklyn Blood transfusion has passed the stage of infancy It is of little importance today which method one employs to perform transfusion as long as he is able to perform the operation with ease, with accuracy and with safety to the patient The physician who is called on to perform transfusion may well use his judgment and determine which method will be more convenient He will surely be doing justice if he will discard all instruments in existence and resort to anticoagulation drugs for the purpose of preventing coagulation and in the hope of preventing operation He may also be able to perform a blood transfusion by adding normal saline, equal parts, to any given quantity of blood and thereby prevent coagulation Circumstances, however, may suggest different methods at different times While anticoagulation drugs may be procured, prepared and then transfused in an institution, in the operating room or even in the patient's home, instruments for the transfusion can be used at all times and in every emergency, even in the highways in the country, on the farm, on the battlefield, in the trenches, wherever an emergency presents itself I have performed 133 transfusions on 78 patients Of these, 34 were for traumatic hemorrhages, from the kidney in 3, ruptured ectopic pregnancy in 2, postpartum hemorrhage in 4, placenta praevia in 3, excessive bleeding from hemorrhoids, 3, postoperative and intestinal hemorrhage, 4, gastric ulcer, 6, ruptured varicose ulcer of the leg, 1, hemophilia, 5, fibroids, 2, pulmonary hemorrhages, 1 Of the chronic cases, I have transfused for recurrent epistaxis, 4, purpura hemorrhagica, 5, psoriasis, 1, carcinoma of the breast, carcinoma of the uterus, preoperative carcinoma of the stomach, carcinoma of the eye, abdominal carcinomatosis, 1 of each, lymphosarcoma, 2, postpartum sepsis, 4, post abortive sepsis, 5, ulcerative endocarditis, 1, chronic furunculosis, 3, Banti's splenomegaly, 1, advanced simple anemia, 14, pernicious anemia, 40, postoperative shock, 4, cholemia, 1, melena neonatorum, 1, postoperative sepsis, 1, asthenia, 1, lymphatic leukemia, 2, hydatid mole, 2 I have had favorable results in these 78 cases Of these there were 15 cases in which the outlook for recovery was poor and transfusion saved the patients' lives, 23 were cured, the lives of 20 were prolonged, and 20 died I have used my own special method I have devised two instruments, one is known as a valve and the other as a shuttle The valve consists of two arms with rubber tubing and a stem The stem of this instrument I attach to an ordinary record syringe used for salvarsan injections and by means of my special cannula, which I introduce into the vein of the donor, and couple to the arm of the valve, fill the syringe with blood, turn the lever and empty it into the empty vein of the patient Having emptied the syringe, I come back to the arm of the donor, refill the syringe and take the desired quantity of blood The second instrument is made on the same principle, except that it has no lever to turn back and forth, but the syringe goes back and forth from one arm to the other I introduce the arm of the instrument into the vein of the donor, fill the syringe with blood and permit the syringe to move it instead of a lever, and empty it into the vein of the patient I use a 100 c c record syringe By going back and forth I get the desired quantity of blood I have transfused 133 times *with no bad results, without* chill, without exposing the blood to the air, without paraffin, boiling the instrument the same as any other, and have not found it necessary to resort to any other method

Dr. Richard Lewisohn, New York It is rather surprising that sodium citrate, which has been used extensively as an anticoagulent in laboratory work, had never been made use of before for human blood transfusion According to the textbooks on pharmacology, it requires at least a 1 per cent mixture of sodium citrate to prevent coagulation of the blood My experiments show that 0 2 per cent is sufficient to prevent clotting, and furthermore, that if a 1 per cent. mixture is used in large transfusions, the clinical results will be most alarming and possibly fatal These two new observations have put the citrate method of blood transfusion on a safe clinical basis It should be our aim in surgery to simplify the technic as much as possible, if the simplified methods give us the same clinical results as the more complicated ones There can be no doubt that the citrate method is technically much simpler than any of the other methods Furthermore, this new method makes blood transfusion applicable in a number of diseases in which the other methods (vessel anastomosis, syringe and stopcock methods) could not be used on account of the risk for the donor (bacteremia, typhoid, etc.) Extensive experience has shown that citrated blood is clinically as efficient as unmixed blood, even in hemorrhagic diseases Furthermore, citrated blood, within the limits mentioned above, is absolutely atoxic I have repeatedly used rather large quantities of citrated blood in new-born infants suffering from melena neonatorum, omphalitis neonatorum, etc The bleeding stopped immediately and the babies did not show even the slightest reaction My records include 130 cases, of these, 15 per cent. had a chill following the transfusion We encountered chills following the infusion of citrated blood somewhat more frequently than with the other methods (Unger about 5 per cent, Lindeman 10 per cent.) I do *not* think that the addition of sodium citrate to the blood accounts for the chills They are probably caused by the chilling of the blood during the transfer from donor to recipient I intend to use a thermos bottle of special construction in place of an ordinary glass jar, and hope thus to reduce the percentage of chills

Dr J Bion Bogart, Brooklyn Dr Miller happens to be my associate at the Jewish Hospital and many of his transfusions have been done in my service and I have been a witness to them If you hear an operator talk, his method seems easier than when you see it done Now the Miller method is just as easy as it looked when Dr Miller demonstrated it here by drawing water into the syringe and changing from one receptacle to another I want to take issue with the statement made by Dr Lewisohn that there is no doubt that the citrate method is the simplest of all methods I have the greatest admiration for Dr Lewisohn and his method and I would be the last one to take exception to anything that might be said so long as it was true, but I am satisfied from having seen a large number of these transfusions that the Miller method is quite as simple and I believe I might truthfully say it is simpler than the citrate method Any one who can introduce the cannula, use a syringe and turn the valve can make the transfusion You saw the little box which Dr Miller brought—about 4 inches long 2 inches wide and 1½ inches deep That is all you need The donor has to be examined in the same way in both cases

This matter of blood transfusion has reached a point at which there is no longer any discussion about its usefulness Its field is widening all the time I think it has reached the point as to which is the simplest method—simply a question of which can be done the easiest, and which all may be able to do, and I would advise every one of you before leaving this meeting to take in your hands the Miller valve and make the experiment of transferring water from one vessel to another with it. I think that will convince you that the Lewisohn method is not the easiest My own judgment is that there are only two methods, the Miller method and the method by the citrated blood

Dr J Shelton Horsley, Richmond, Va I regard the work of Dr Lewisohn on transfusion as second in importance only to that of Crile and Carrel Any surgical operation that is converted from a complicated technic into a simple procedure is the ideal in surgery, and this is what Dr Lewisohn has done He has taken an operation that is sometimes urgently necessary, and also a very complicated one as done according to the earlier technic, and converted it into such a simple thing that any one can do it. I confess I was somewhat skeptical about this method when it first appeared, but I have been converted by the results that have been shown

There are some interesting features connected with the citrate method, however that have not been explained and may have no practical bearing We know that, according to Lewisohn, a 0.2 per cent. solution of citrate of soda will prevent blood from coagulating from one to two days, but when this citrated blood is introduced, the coagulation time of the patient's blood is always shortened This shows that there is some product of injured cells released by the citrate method that formerly was not present Thrombokinase, or some similar product that results from injured platelets or blood cells, is undoubtedly produced, for otherwise the coagulation time would not be shortened It would be interesting to know just what happens to cause this phenomenon

Comparatively little is known about the chemical changes in blood. Physiologic chemists are not agreed about so gross a process as coagulation It is reasonable to suppose that some other changes that cannot now be detected occur in blood that is not performing its normal physiologic function The turning loose of cell products by the citrated blood is an evidence that the material introduced is not the same as the blood would be if carried directly along a continuous channel of vascular endothelium, as in the direct suture method of transfusion Clinically, however, these changes from citrated blood that tend to shorten the time of coagulation of the patient's blood, seem to be of no importance if the technic of Lewisohn is adopted. If the results are practically the same, the simpler method, of course, should be adopted

Dr. Bertram M Bernheim, Baltimore It must be nice to have Dr Bogart say for one, 'If you come down to the Jewish Hospital, we will show you" If you come to Baltimore, if you go to Mt Sinai if you go to Chicago, you can see still other methods, and if you go to Brown you will also see an instrument there which works perfectly, but they are all for whole blood and will not do I sympathize with Dr Miller because I devised two instruments myself All my work is surgical I hated to see the whole blood method go, because the citrated method introduced a tremendous amount of competition not encountered before And thereby hangs a tale The medical men have taken up citrate transfusion The citrate method is open to all, but few can do a hurried whole blood, emergency transfusion I have done transfusing in a blacksmith shop when there was no other way I have crawled up on the bed and transfused people, but I was pretty skilled in doing that transfusion, and have seen others try to do it and fail, even in a well equipped operating room If one is going to use these instruments we have heard about, one has to use syringes Dr Miller's remarks were beside the point This is neither the time nor place to demonstrate instruments The subject under discussion was citrated transfusion as compared to whole blood transfusion It cannot be denied, if one considers the matter, that the citrate method is the simpler One must admit there is a great advantage in dealing with only one patient In citrate transfusion the blood is taken from the donor and may be administered in New York, Baltimore or Chicago It can be carried in a flask! Instruments are bad and must be relegated to the scrap heap

STUDIES ON THE CAUSE AND THE TREATMENT OF BRONCHIAL ASTHMA *

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During the past two years at the Peter Bent Brigham Hospital, we have been investigating the cause of bronchial asthma and our study of its causation has led to a consideration also of the treatment of this disease Because of the close relationship between the symptoms of bronchial asthma in man and those of anaphylaxis in animals, we have been interested chiefly in the part played by protein sensitization as a cause of bronchial asthma A few words will outline the pioneer observations which have linked together the symptoms of these two conditions

The earliest observation having direct bearing on protein anaphylaxis is found in the writings of Magendie in 1839 He describes the sudden death of dogs which had been repeatedly injected with egg albumin The next observation was in 1894 by Flexner, who noted that animals would succumb to a second dose of dog serum if some days or weeks were allowed to elapse between the first and the second injections Richet in 1902 made a systematic study of this problem and found that the first dose of protein was followed by a condition of markedly greater susceptibility to the protein He called this phenomenon anaphylaxis to express its antithesis to prophylaxis or protective effects As a result of many other investigators from this time on we now know that, when a specific antigen (a protein in the case of asthma and anaphylaxis) meets its antibody, the reaction between them gives rise to a toxic product and this causes the characteristic symptoms known as anaphylactic shock In 1910 Meltzer pointed out that in both bronchial asthma and anaphylaxis the symptoms consist in a tonic stenosis of the small bronchioles and that both conditions are favorably affected by the administration of atropin

From the work of many investigators we now know a considerable amount about anaphylactic shock in animals In our study of bronchial asthma we have been able to show to a certain extent that a similar type of anaphylactic shock plays a rôle in asthma in man If a bronchial asthmatic who is sensitive to some protein be injected subcutaneously with a small amount of this protein, he will have shortly an attack of bronchial asthma He has difficulty in expiring, but at first no difficulty in inspiring. Later, as the lungs become overdistended, there is difficulty also in inspiration If the patient is examined with the fluoroscope at the time when he is struggling for breath, we find that the lungs *do not* expand and that the diaphragm is stationary Immediately following an injection of epinephrin chlorid, however, the lungs are seen to expand, the diaphragm moves up and down with respiration, and the patient's dyspnea abates Furthermore, an analysis of the patient's alveolar air during the paroxysm of difficult breathing shows that the alveolar air has a low carbon dioxid content, although the blood at the same time shows a normal carbon dioxid content Following the injection of epinephrin chlorid, which relieves the difficult breathing, the carbon dioxid content of the alveolar air gradually returns to the level of that in the blood Thus attacks of bronchial asthma and anaphylactic shock are similar, in that both may be caused by proteins, and the symptoms are similar, in that there is labored respiration Pathologically, the two conditions are alike, in that there is distention of the lungs, and furthermore in animals there is a stenosis of the bronchioles, and in the human body there is evidence of this from the carbon dioxid content of the alveolar air And lastly both conditions are relieved by injections of epinephrin chlorid

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* Read before the Section on Practice of Medicine at the Sixty Eighth Annual Session of the American Medical Association, New York June 1917

We have used the cutaneous or skin test to demonstrate what protein might be the cause of bronchial asthma A number of small cuts, each about an eighth of an inch long, are made on the flexor surfaces of the forearm These cuts are made with a sharp scalpel, but are not deep enough to draw blood, although they do penetrate the skin On each cut is placed a protein and to it is added a drop of tenth normal sodium hydroxid solution to dissolve the protein and to permit of its rapid absorption At the end of a half hour the proteins are washed off and the reactions are noted, always comparing the inoculated cuts with normal controls on which no protein was placed A positive reaction consists of a raised white elevation or urticarial wheal surrounding the cut The smallest reaction that we call positive must measure 0.5 cm in diameter All larger reactions are noted by a series of plus marks and any smaller reaction is called doubtful As evidence that the skin test is satisfactory and conservative we have found by treatment with subcutaneous injections of proteins that we cannot inject a patient with a stronger solution of a protein than that which gave a positive reaction without producing an attack of asthma For the preparation of the proteins that we use in the skin test, I will refer you to the series of papers that have already been published

In this paper we have limited our study to the first 150 patients, because all of these were studied during one complete year, from May to May Thus, each season is represented once and a fair series of cases result Of this series of 150 cases, eighty-three, or 55 per cent, were sensitive to some protein The horse was chiefly responsible for bronchial asthma in this group in 20 per cent of the cases, the wheat proteins, *Staphylococcus pyogenes-aureus* and the early pollens were each responsible for asthma in 15 per cent of the cases, the late pollens in 10 per cent, the cat in 5 per cent, *Staphylococcus pyogenes-albus* in 3 per cent, a group of miscellaneous proteins in 7 per cent, and in the remaining 10 per cent of these cases several proteins were the cause of asthma These percentages are not absolutely accurate, because so many patients were sensitive to more than one protein but the percentages do represent the chief offender as nearly as it is possible to do so Thus, it is seen that in our cases, the horse was the cause of asthma in the largest number of patients, that the wheat proteins, *Staphylococcus pyogenes-aureus,* and the pollens were close seconds, and that the cat and *Staphylococcus pyogenes-albus* were poor thirds Of the miscellaneous proteins, one patient was sensitive to casein, one to egg, two to chicken meat, one to feathers and one to flaxseed

A few words seem necessary in regard to multiple sensitization, or sensitization to more than one protein We have found that most of the patients that are very sensitive to the proteins in horse dandruff are somewhat sensitive to the proteins in cat and dog hair The same patient is not equally sensitive to the individual proteins found in the same type of animal hair Only 20 per cent of those patients that were sensitive to horse dandruff were also sensitive to the whole horse serum protein, so that a very small percentage of asthmatics are sensitive to horse serum and the danger of injecting an asthmatic with moderate amounts of horse serum, such as antitoxin, is confined to only a rare case The sensitization of patients to different tissues or fluids of the same animal also varies Taking for example the beef animals, the same patient may be sensitive to any one alone or to any combination of the following tissues or fluids, namely, meat, milk, serum and hair The same holds true for the fowl, in regard to feathers, meat and egg, and for the sheep, in regard to wool, meat and serum The same patient may be sensitive to any one alone or to any combination of the different structures of the plant, namely, to the seed, the pollen, and the leaves Patients differ in their sensitization to the individual proteins of the same cereal, for instance, the same patient may be sensitive to any one alone or to any combination of the individual proteins of the wheat kernel Even the amino-acids give a positive skin reaction The above examples show the specificity of the skin test in separating more or less closely related proteins, and they do not really represent examples of multiple sensitization I think multiple sensitization should be restricted to sensitization with proteins that are less closely related For example, we find that the same patient may be sensitive to any combination of the proteins derived from plant, animal, food or bacterial sources, thus we have a combination of widely separated proteins This type of multiple sensitization is very common and these cases are the most difficult to treat Thus it is seen that it is necessary to test with an almost unlimited number of proteins before one can say that a patient is not sensitive to proteins For practical purposes, however, such an outlay of proteins is not necessary, since, as already mentioned, the majority of sensitive patients with bronchial asthma are sensitive to the kinds of proteins that have been mentioned earlier in this paper, namely, horse dandruff, *Staphylococcus pyogenes-aureus,* wheat, the pollens, *Staphylococcus* *pyogenes-albus,* cat hair and a few very common foods.

A few words will dismiss the nonsensitive patients. Of the 150 patients in this series, 45 per cent. failed to react to any protein that was tried. It is possible that the intradermal test would change some of these cases from the nonsensitive to the sensitive group, and if this is true, the bacterial proteins would most likely be the ones that would produce this change. This statement will be verified later on.

Besides the skin test, other facts would seem to warrant the division of bronchial asthmatics into two groups. No patient that had onset of asthma after the fortieth year of age has given a positive skin test, and one half of the sensitive patients began to have asthma previous to the age of twenty. Quite opposite to these statements is the fact that 40 per cent. of the nonsensitive patients had onset of asthma after the fortieth year of age and only 15 per cent. had onset of asthma previous to the age of 20. Only 1 per cent. of the sensitive patients had cardiorenal disease, whereas 20 per cent. of the nonsensitive patients had this complication. Chronic bronchitis was a complication in only a small number of the sensitive patients, but it was a complication or cause of asthma in nearly all of the nonsensitive patients. These statistics thus seem not only to separate bronchial asthma into two types, namely, a sensitive and a nonsensitive, but they are of value in determining the cause and the treatment of bronchial asthma. For instance, the patient that has onset of bronchial asthma early in life is usually sensitive to some protein, chronic bronchitis is not a usual complication, and cardiorenal disease is a rare complication. Contrary to the above, the patient that has onset of asthma after the age of 40 is not sensitive to proteins, chronic bronchitis is almost always a complication or cause, and cardiorenal disease is frequently a complication or cause of asthma.

With the serum of our sensitive patients we have done complement fixation and precipitin reactions, using the protein to which they were sensitive as an antigen. These tests have proved to be of no help in the diagnosis, prognosis or treatment of the condition. A small number of the sensitive cases do give positive complement fixation and precipitin reactions, but the majority fail to do so, and the positive tests are rendered negative by a few injections of the antigen. Serum agglutination tests have been done with the common types of bacteria in both sensitive and nonsensitive cases. We have found that the serum of many patients that are sensitive to the protein of *Staphylococcus pyogenes-aureus* agglutinates strains of this organism. The serum of a few of the nonsensitive patients also agglutinates this type of organism, and treatment with vaccines of this organism in these nonsensitive cases is followed by relief from asthma. Therefore an agglutination between the serum of a nonsensitive patient and strains of *Staphylococcus pyogenes-aureus* is an indication for treatment with vaccines of this organism.

The treatment of the nonsensitive group of bronchial asthmatics has been disappointing. About one case in every six has been relieved of asthma by vaccines made from a diphtheroid organism. This particular type of organism was selected because it was usually the predominating one in the patient's sputum when the sputum was cultivated on plain agar. It seemed to make no difference whether the patient was given a stock vaccine of this organism or an autogenous vaccine. The vaccine was given once a week in gradually increasing amounts, over a period of two or three months. Relief from asthma continued for several months after the vaccines were discontinued. The serum of about one in every eight of the nonsensitive patients agglutinated strains of *Staphylococcus pyogenes-aureus,* and these patients have been satisfactorily treated with stock vaccines of this organism. Relief from asthma in these cases has continued for from four to six months after the vaccines were stopped. Those patients who do not come within either of these two groups have been treated without relief with vaccines made from the organisms that are commonly found in the respiratory tract. Likewise those patients who were relieved by diphtheroid and *Staphylococcus pyogenes-aureus* vaccines were also treated with vaccines made from the usual respiratory tract organisms without relief, thus showing a specificity among bacteria in the treatment of bronchial asthma. The nonsensitive patients usually have complicating diseases, such as chronic bronchitis, emphysema and cardiorenal disease, and it is quite possible that these conditions may be the cause of asthma in such patients. At any rate, these conditions must be treated, and it is in such patients that potassium iodid gives more or less relief. In these *nonsensitive* patients it is possible that the intradermal test would be helpful, and we would expect that bacteria would be found to be the cause of asthma.

The sensitive patients offer a very good prognosis. If the patient is sensitive to the food proteins, omission of these foods from the diet is followed by relief from bronchial asthma, unless the patient has considerable bronchitis, which may require attention, and we find that vaccines made from the predominating organism in the patient's sputum greatly benefits or relieves this condition. We have treated our wheat cases with subcutaneous injections of the wheat proteins, but we have been unable to increase the patient's tolerance for these, and the eczema that is a frequent complication in these cases has been made worse. Therefore omission of the food proteins from the diet seems to be the simplest treatment for this type of bronchial asthma. Treatment with the amino-acids of the food proteins may be of benefit.

Those patients who are sensitive to bacterial proteins are successfully treated with stock vaccines of that particular organism to which they are sensitive. These vaccines have been given at weekly intervals, in gradually increasing amounts, beginning with 200 million the first dose. Relief from attacks of asthma has continued for from four to six months after the vaccines were discontinued, and relapses have yielded to a second series of vaccines more quickly than to the first series. Large doses of vaccines at first or a sudden large increase in the dose is detrimental, and has precipitated attacks of asthma. It is interesting that the serum of asthmatics that agglutinates *Staphylococcus pyogenes-aureus* before treatment fails to agglutinate this organism after treatment, an increase in agglutinins would be expected.

Bronchial asthmatics that are sensitive to the proteins in horse dandruff and cat hair are relieved of attacks during a series of subcutaneous injections with these proteins. Treatment has not been discontinued in a sufficient number of these cases to definitely say how long relief may continue after treatment is omitted. But patients have remained free from asthma for six and seven months during treatment, and a few patients that have not been treated for four months still continue to be free Treatment is begun with the dilution of the protein next higher than that to which the patient reacts Usually the patient gives a positive skin reaction with a dilution of 1 100,000 of these animal hair proteins, so that treatment is begun with a dilution of 1 100,000 The amounts of the dilution must be slowly and gradually increased with each treatment in order not to precipitate an attack of asthma Horse asthmatics should not be given large amounts of horse serum intravenously without previously testing the patient with horse serum and horse dandruff, this naturally applies to antipneumococcus serum therapy If the asthmatic is sensitive to horse dandruff proteins and not to horse serum, he may be injected slowly with as much as 60 c c or more of horse serum before signs of an asthmatic attack develop, and if the injection is stopped at this time no serious results follow and the asthma is controlled by epinephrin chlorid If, however, the asthmatic is senstive to horse serum, a subcutaneous injection of 0 25 c c of antipneumococcus serum will produce violent asthma Such a patient may be desensitized by frequently repeated gradually increasing doses of horse serum given first subcutaneously and later intravenously, so that the patient may be given 60 c c or more of antipneumococcus serum intravenously before symptoms of asthma appear This method of desensitization with horse serum protects against horse serum for many weeks, but it protects against horse dandruff proteins for only a day or two, so that injections of horse serum are of little or no value in the treatment of horse asthma

Treatment with all of the proteins that have been mentioned reduces the positiveness of the skin test and sufficient treatment renders the skin test negative to these proteins Treatment with one protein desensitizes against all closely related proteins, for instance, treatment with one of the proteins found in animal hair or wheat desensitizes against the other proteins that are present in the same hair or in wheat But treatment with a protein does not desensitize against other proteins that are not closely related, treatment with the horse dandruff proteins does not desensitize against cat hair protein, and treatment with the wheat proteins does not desensitize against the protein found in other cereals Therefore, there is a specificity among proteins in the cause and in the treatment of bronchial asthma

Patients who are sensitive only to closely related proteins such as already outlined are the simplest to treat and those who are sensitive to several types of proteins which are not closely related are the most difficult to treat This is because at first one cannot judge which protein is the cause of asthma at the present time and so several proteins may have to be tried before the correct one is used

Patients with bronchial asthma associate attacks with cold air, dampness, changeable weather, winds, menstruation, indigestion, nervousness, irritability, colds and bronchitis After treatment with the proper protein these patients become tolerant to such conditions, so that they can be exposed to them without asthma resulting, and they become free from nervousness, irritability and indigestion without the use of drugs and hygienic measures There seem to be two types of colds and of bronchitis, one of which is anaphylactic, and relief or freedom from this type follows proper treatment with proteins The other type is caused by bacteria and frequently vaccines relieve and prevent this type

We no longer feel that bronchial asthma is a surgical disease Practically all of our patients have had nose and throat operations with little or no benefit We do not advocate removal of tonsils, adenoids, spurs, deviated septums, hypertrophied turbinates, etc, for the relief of bronchial asthma These conditions often need to be remedied for the general health of the patient, but rarely do such operations relieve bronchial asthma Sensitization tests should first be tried and treatment should be given according to its dictates If the patient's asthma happens to be caused by bacteria it is quite possible that foci of these bacteria may be present somewhere in the body, and such foci should be looked for in the teeth, tonsils, etc , such foci should be removed

In this paper I have outlined our work For more detail those interested are referred to a series of papers already published or soon to be published in the *Journal of Medical Research*

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ABSTRACT OF DISCUSSION

Dr W T Longcope, New York We have treated some cases of egg asthma Only a small proportion showed hypersensitiveness to foreign proteins We think it is possible to differentiate two groups, one which can be artificially sensitized, and the other to which the asthmatics and cases of urticaria belong Persons who have had large doses of horse serum will react to horse serum if given after a period of twenty-one days, these patients do not have asthma, however Therefore these artificially sensitized individuals are not sensitive to foreign proteins It has been well known and it has recently been suggested that this hypersensitiveness is inherited, and there are instances in which the hypersensitiveness comes through the male members of the family

Dr Mark J Gottlieb, New York We have found that occasionally a patient may be sensitive to the antigen, and yet, no reaction occurs on exposing the scarified portion of the skin to it It seems possible and likely that the anaphylactic phenomena occur after applying the antigen in question to the mucous membrane or tissues other than the skin

In a recent paper by Drs Erscheimer and Kahn, they pointed out that possibly the poisonous substances floated in the blood stream during the attack of asthma They treated their patients by injecting large quantities of autogenous defibrinated blood intramuscularly It occurred to us, that possibly their contention was correct, and we forthwith started out to prove or disprove it We procured the blood from a patient who was having a severe attack of bronchial asthma This blood was defibrinated at the bedside Six-tenths of this blood was injected intravenously into three guinea-pigs Three others received an equal quantity of blood prepared in the same way from a nonasthmatic Two of the guinea pigs that were injected with the asthma blood showed definite anaphylaxis One died about eighteen hours after the injection His lungs showed an occlusion of the bronchioles, a marked distention of the alveoli and a round cell infiltration of the vessels The same experiment was repeated, with comparatively negative results, with blood from another patient who was having severe asthmatic symptoms The controls were negative

Dr. M I Knapp, New York My experience with asthma embraces about 300 cases, with few exceptions, all successfully treated A woman who consulted me about indigestion and who also suffered from asthma, had insufficiency of the pylorus After a few weeks' treatment she surprised me by telling me that she no more had asthma I believed this to be a mere accident. This experience has repeated itself in three subsequent cases Under certain conditions in insufficientia pylori, not in all, there is an increased intra abdominal pressure due to the excessive production of gases This, I reasoned in pressing upward against the diaphragm and through it against the lungs, produces in the lungs the condition which we recognize as asthma All asthmatics suffer from the overproduction of gas Having come to this conclusion I could understand why my patients were cured of their asthma, namely the curing of the intestinal condition ended the gas pressure against the lungs, which were now able to expand normally In my experience there is only one asthma—bronchial asthma—although heart or kidney disease may complicate it which does not make it cardiac or renal

Dr. Ernest Zueblin, Cincinnati I agree with the author that part of asthmatic symptoms are due to systemic infections but also quite a number of cases are due to intestinal putrefaction or at least that symptom is present in a great number of cases as shown in an interesting paper by Allen Eustis This author obtained encouraging results with a diet containing only a small amount of histidin which substance and its split products can produce symptoms resembling asthma My clinical studies in that disease have always revealed abnormal gastric secretion, besides disturbances in the utilization of proteins Of further interest in such cases is the frequent presence of low blood pressure, and particularly of a low pulse pressure which necessarily is unfavorable for the work of the heart the latter offering as found by threshhold percusion in a number of my cases a dilatation of the right ventricle There is not one single cause but many causes for asthma, the task of the diagnostician must be just to find out the individual cause, which must be duly considered in the management of the treatment. It may seem peculiar that bacterial absorption as well as intestinal absorption, may lead to asthmatic symptoms From the chemical standpoint perhaps the split products from either source may act similarly on the cardiovascular and on the sympathetic nervous system as well

Dr L. F Bishop, New York. There is no question that some young people are sensitive to unusual proteins and I am convinced that a great many older asthmatics are also sensitive to food proteins Aside from laboratory work by the method of variants, one can take any patient and test his food relations The question of diet is one of quality and not of quantity On this ground I have devised a system of diet which I call the "few proteins diet. I found that it was only when one had eliminated as many proteins as possible from the diet that one obtained results

I begin with castor oil, and then cut out meats and soups made with meat stock from the diet, also eggs and fish I had a patient an asthmatic for fourteen years who when put on a very strict diet, got much better I took away the eggs and fish from his diet and he got so much better that he continued the diet of his own accord I got a letter from a very prominent physician in Milwaukee a few days ago who told me he had become immensely improved since he had taken eggs out of his diet Lately he had taken eggs by chance and had a very bad attack. Since then he has cut out eggs

Dr. G N Jack Buffalo During the last eighteen years, in conjunction with a general practice, I have made a study of 889 cases of asthma and their relation to food and weather conditions Owing to the unstability of the blood of the asthmatic and summer-autumnal coryza subjects their blood is rendered hypersusceptible and sensitized to numerous metabolic gas weather and food conditions

Dr. S Solis-Cohen Philadelphia The causation of asthma is not only protein but protean, and there are many factors which must be studied It belongs to the group of visceral neuroses dependent on autonomic imbalance In all of these, there is first an underlying or "constitutional' liability, second, an exciting factor, and third, a local determinant. In asthma this triple nexus is most evident Usually—translating our ignorance into Greek—we speak of these peculiar reactions to various stimuli as "idiosyncrasies to call them anaphylaxes" is equally unenlightening until we can determine why John should exhibit "wheat anaphylaxis" and Mary 'horse anaphylaxis"—and we have not even approached that point But I have shown that in all these food and drug 'idiosyncrasies' and in the pollen "idiosyncrasy" we call 'hay-fever, there exists a fundamental ataxia or imbalance of the vegetative—or to use Langley's inclusive term "autonomic—nerve system Its cause and its endocrinal associations are "other stories" for which there is not now time Asthma is one of this group of recurrent syndromes, depending on the incidence of an appropriate exciting factor, which may be a weather condition, an emotion, a chemical or mechanical irritant food pollen, microbe or any one of a thousand things Then comes the local determinant, which is often a diseased condition of the respiratory mucous membrane This may have its seat in the tonsils, adenoids, bronchi nose or anywhere in the respiratory tract When we have found these three factors—all of them—then we can treat the patient scientifically as well as rationally When we can t we must treat empirically—but not irrationally

Dr I Chandler Walker, Boston I agree with the first discussant in that proteins may be the cause of asthma in some patients who fail to give positive skin tests and who may not be sensitive to proteins In regard to pyloric insufficiency we have not observed such a condition, although we have made bismuth Roentgen ray studies on many patients, we have frequently found malpositions of the abdominal viscera, such as low stomachs and low transverse colons fixed colons and fixed cecums, etc, and we feel that such conditions by causing stasis may increase the liability of the absorption of partially digested foods, and these in turn, may cause asthma Also such conditions may lead to fermentation and distention of the intestines and this in turn, by pressure on the diaphragm, incites asthma In regard to the autonomic imbalance, if you choose to consider this condition we might very well consider that the proteins furnish the toxin or irritant that causes the imbalance

ANESTHESIA IN CURRICULUM AND CLINIC*

W D GATCH, M D

INDIANAPOLIS

I hope that the critical conditions confronting our profession and medical schools may impart a timely interest in this subject The teaching forces of the latter are to be reduced The country needs, as never before, well trained physicians New subjects, suddenly made important by the war, must be taught The time demands a critical examination of our program of teaching to avoid waste of energy We must plan to make each effort count, or the training of our graduates will suffer Therefore, let us consider briefly the condition of the medical curriculum as a whole before assigning to the subject of anesthesia its position, relative importance, and method of presentation

With the progress of medical knowledge new subjects are constantly being crowded into the course of study Despite a gradual increase in the period of instruction up to the present duration of practically seven years, the crowding continues This process has been carried to a limit at which it threatens to defeat important ends of medical instruction I lately heard an officer of high rank in the government medical service declare that he does not expect recent graduates in medicine seeking admission to the public service to pass the examinations in anatomy and physiology Experience, he said, has taught him that graduates from even the best of our schools have nearly always forgotten what they once knew of these subjects Facing such facts it takes considerable tion of our students and the development of experts in that particular line, but that we demand of that department such strength and such organization as will enable it to carry on research work and to add to our present sum of knowledge

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*Read before the joint meeting of the Section on Surgery General and Abdominal, and the Section on Pathology and Physiology at the Sixty Eighth Annual Session of the American Medical Association New York, June 1917

Dr. Edward Wallace Lee, New York I believe absolutely and thoroughly in all that has been said in regard to training and all that pertains to the scientific administration of an anesthetic, but one point I want to bring out is that the administration of an anesthetic by an intern should be held up to him as an ambition and a privilege, and if he attains that privilege he must work for it I speak of that because the general feeling today among interns is that they do not like it when they are appointed, as they often express it, to "give the dope" The giving of the "dope" in a great many hospitals has sort of degraded, in the minds of the intern, that very responsible position, and I make the suggestion that an intern, before he has the privilege of administering an anesthetic, should be made to understand, or he should be inspired with the idea that there must be some ambition, something he must work for before he is permitted to give an anesthetic Make a thing hard to get for a student, give him to understand that he has reached an exalted position, and he will be more keen and more ambitious and will take a greater and a keener interest

Dr A F Erdmann, Brooklyn Perhaps it is fair that one of the men who has taught the subject we are discussing today should say a word For a number of years I have been endeavoring to do what Dr Gatch has been talking about—to teach students anesthesia I have found that all we can teach them to do is to be administrants rather than to be anesthetists I believe thoroughly in what Dr Gatch has said, and I would explain myself in this way In the earlier days we probably gave more time to the teaching of anesthesia, but not in the right way, for not enough attention was given to its proper relation to allied subjects It does seem to me that time could be very well used by the instructor if he could take up the work in the different departments, as Dr Gatch suggested, that is, that he should teach anesthesia in connection with surgery, that he should teach it in connection with physiology and with pharmacology There must be some definite correlation and agreement, otherwise a surgeon's teaching might be at variance with that in the physiologic department, and so a physiologist might differ with a pharmacologist. I have known that to happen One man would teach one thing and another man another If a man were big enough to be a surgeon, a pharmacologist, a physiologist and an anesthetist, he would be the ideal man The work could be best done by a man who is able to do that sort of thing, because he would bring the instruction together, rather than have it done by half a dozen different men in half a dozen different ways

Dr Torald Sollmann, Cleveland There is one phase of the matter that I would like to emphasize as a teacher of pharmacology, namely, that the teachers in charge of the clinical applications of the subject should inform themselves more than they appear in the habit of doing, as to how the subject is taught and to what extent it is taught, in the so-called fundamental branches Anesthesia scientifically is a problem that does not differ from the other problems that concern biology, physiology or pharmacology In its fundamental aspects it is perfectly capable of investigation by laboratory methods, perhaps even better than by clinical methods, and it is now covered in the fundamental courses to an extent that I believe would be rather surprising to the clinical men I believe that the curriculum would be in much better shape if the men who are in charge of the clinical teaching of anesthesia would inform themselves of what is done in their own institutions in the fundamental branches of this subject

I must differ to some extent with the last speaker in his idea that the subject of anesthesia should be taught in the fundamental departments by a clinical man who covers the entire subject of anesthesia Such a conception of education is of course possible. We could have in the course of pharmacology one man come in to teach the subject of anesthesia from the pharmacologic standpoint, and another man to discuss the pharmacology of morphin from the standpoint of internal medicine, and another man to give the pharmacology of digitalis from the standpoint of the clinician If we extended that system sufficiently there would be very little left for the pharmacologist proper to do, but on the whole it would give the student a rather choppy sort of view of the subject I think it is better on the whole for the teachers in fundamental subjects to give a rounded-out course

Dr. Kenneth A J MacKenzie, Portland, Ore. We sometimes find ourselves confronted with difficulties in relation to the question of anesthetics and the message given by Dr Gatch is a most timely one In relation to teaching, the suggestion made by Dr Gatch meets every indication What could be better than the correlation of teaching so that the anatomist can give instruction in the proper manner, and at the proper time the physiologist, the biochemist and the pharmacologist. In the small clinic of which I have had charge for a number of years, we have pursued the following method for several years In their senior year, after having previously been coached, four students enter the amphitheater, two at the head taking instructions from a trained anesthetist, and two assisting the operator under the tutelage of his assistant One of the two students at the head takes his instruction in the immediate administration of the anesthetic, the other is studying the reaction of the operative procedures on the patient as registered by the sphygmomanometer These records are not only taken, but recorded When this method is followed it is astonishing what messages are received at times by the operator which would otherwise pass unnoticed It was regarded at first as a bold step to put students within the operating field, but after their work has progressed for a month or two they begin to give the anesthetics themselves and to make useful observations, so that in a class of only twenty-five or thirty members all the students receive a considerable degree of instruction in operative technic and anesthetics, which we find increasingly useful as time goes on Our wounds have not been affected adversely by this step, nor have casualties in anesthetics appeared more frequently The experience has been most valuable for students

Dr. F W Pinneo, Newark, N J I speak from the standpoint of the general hospital, not connected with a college, and would show the difficulty that not only colleges, but the whole medical world realize the need for better anesthesia The basis of these problems is in the education of the intern. This education is of two kinds—theoretical knowledge when in college, which is inadequate, and anesthesia in practical surgery Anesthesia has four factors, involving the induction of so-called comfortable anesthesia, second, even maintenance at only the desired depth, third, quick recovery, fourth, no after-effect Now how can an intern solve these problems and what is concerned in them of the underlying medical sciences if he has not studied them theoretically and found in their application their correlation in anesthesia? He is much more than an administrant of the anesthetic. He has carried through the anesthesia after the choice of the anesthetic has been decided, and he is now in a safe and sufficient maintenance In the maintenance of the anesthesia an administrator without fundamental knowledge may do very well, but when the interns get bad results they do not know what the trouble is In a case in point intratracheal anesthesia was to be given, the hospital intern was administering it, and when I asked what he would do under certain problems of lack of oxygen and respiratory arrest, he said, "I don't know" To be sure his supervising anesthetist was at hand, supervising his work, but it shows—although he was a very good administrant—how little he was master of the possible problems he would meet and would have to solve instantly I stand, therefore, for the education of the intern in order that the world can have better anesthesia, and this is a good time to talk of it when we consider how many men must go to the front and anywhere in the world give satisfactory anesthesia

Dr. Willis D Gatch, Indianapolis I agree with almost everything that has been said in this discussion We in the teaching school ought to keep our methods as simple as possible. With that end in view, at present when our students are going out into a service where they will have to meet trying conditions I believe it might be helpful if we were to adopt a standard anesthetic and a standard method of administration and train our students in it I do not say what I think would be the ideal method for military surgical anesthesia We should adopt a method of anesthesia which we know will work under all conditions, which will be as simple and as easy as possible.

SHOCK DURING GENERAL ANESTHESIA *

FRANK C MANN, MD
ROCHESTER, MINN

Owing to the indiscriminate use of the term "shock," it seems necessary to define the meaning of the word as applied to this particular discussion[1] It is used in the sense that the surgeon applies it when a patient develops alarming symptoms during or immediately following an operation, the definite cause of which is doubtful While the data and conclusions presented are, to a considerable extent, experimental in origin, they may also be applied to corresponding clinical conditions The two points of paramount importance in considering the subject of shock during general anesthesia are the cause or the causes of the condition and the effect of the anesthetic in either preventing or accentuating it Owing to the general use of ether and the ease with which definite tensions may be administered it was the only anesthetic used in my experiments, and all the conclusions are based on this anesthetic

In the history[2] of the subject there has always been a tendency to ascribe the condition of shock to a single cause, although the condition itself and the circumstances under which it developed have been quite varied This tendency in all probability has reached its zenith and it is quite probable that in the future both experimental observers and clinicians will study the subject with the view to determine the cause in each individual case It is my purpose to discuss here the different possible causes of shock during anesthesia, the probable physiologic mechanism involved, and their relation to ether anesthesia

In general, surgeons agree that the most common cause of the symptoms of shock, either as a primary or a secondary factor, is free hemorrhage Experimentally this has also been found to be true Many investigators have carefully determined and reported on the mechanism involved It is important to emphasize the points that all persons do not react the same to identical losses of blood, and that estimates of the amount of blood lost during operative procedures must be inaccurate Further insight into this form of shock awaits our more complete knowledge of the control of the volume of blood It should be noted that the reaction following hemorrhage is very similar, particularly in regard to the vasomotor mechanism, to that following trauma to the abdominal viscera[3]

The only uniform and certain method of producing shock experimentally is by exposure of the abdominal viscera The time necessary to expose the viscera before shock develops is variable, depending on many conditions Usually a state of deep shock takes place within an hour or two Owing to the fact that in most experimental work shock has been produced by exposure of the abdominal viscera and that clinically most cases of postoperative shock develop after abdominal operations, more is known concerning this form of shock than any other While the mechanism which produced the condition is not fully understood, many of the most important factors are known

Undoubtedly the cause of shock produced by exposure and trauma of the abdominal viscera is mainly due to a failure of the venopressor mechanism as enunciated by Henderson,[4] although in all probability loss of carbon dioxid is not the primary factor The investigations of Janeway and Ewing,[5] my own experiments and the work of others[6] make it possible to follow quite clearly the process by means of which the condition of shock is produced when the viscera are exposed The process is as follows

When the great delicate vascular area of the viscera is first exposed to the air, changes of temperature and handling, there is an *immediate dilatation* of all the arterioles in the exposed area Rarely a short period of constriction precedes the dilatation As a result of this dilatation of the splanchnic arterioles blood pressure decreases The splanchnic capillaries and veins are markedly distended, which may be due to one or all of the following causes a local inhibition of vasomotor tone, an active dilatation, changes in abdominal pressure, and venous obstruction On the whole, the process resembles the first stage of acute inflammation and does not appear to differ essentially from the phenomena as observed in the classical experiments on the subject After this initial fall in blood pressure the condition of the animal may remain stationary or even slightly improve However, as the loss of tone and paralysis of all the tissue involved take place, the blood pressure progressively falls, the temperature becomes subnormal and the animal develops profound shock This loss of circulatory fluid and changes in temperature quickly imperil the life of the cells of the rest of the organism and death usually results from anemia of the medullary centers, particularly the respiratory At the time the viscera are exposed and during the period that shock is developing, the vasomotor center increases in tone and the untraumatized arteries constrict The amount of this constriction depends on their previous condition and the degree of splanchnic dilatation During this time the center will usually respond to reflex stimulation and asphyxia, which demonstrates that it is still active although not functionating to its maximum extent When the state of shock is fully developed it is usually, but not always, possible to obtain a response of the center, due to the long-continued blood pressure or to the fact that all untraumatized arteries are constricted to their maximum extent or that the great splanchnic area through which most reflex responses of blood pressure are produced is completely paralyzed

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* From the Mayo Clinic.

*Read before the joint meeting of the Section on Surgery General and Abdominal, and the Section on Pathology and Physiology at the Sixty Eighth Annual Session of the American Medical Association New York, June, 1917

[1] Mann F C The Peripheral Origin of Surgical Shock Johns Hopkins Hospital Bull 1914 **25**, 205-212

[2] Meltzer S J The Nature of Shock, Arch. Int. Med. July 1908 pp 571 588 Seelig, M G The Nature of Shock, Internat. Abst. Surg 1914 **18**, 117 123 Vale, F P Concerning Shock, Med Rec New York, **66**, 325 330

[3] Mann, F C. Shock and Hemorrhage An Experimental Study Surg Gynec. and Obst. 1915 **21**, 430-441

[4] Henderson Yandell Acapnia and Shock I Carbon Dioxid as a Factor in the Regulation of the Heart Rate Am Jour Physiol. 1908 **21**, 126-156 Acapnia and Shock, II A Principle Underlying the Normal Variations in the Volume of the Blood Stream and the Deviation from this Principle in Shock, ibid 1909 **23**, 345-373 Acapnia and Shock III, Shock After Laparotomy Its Prevention Production and Relief ibid **24**, 66-85 Acapnia and Shock, V Failure of Respiration After Intense Pain ibid **25**, 385 402 Acapnia and Shock, VI, Acapnia as a Factor in the Dangers of Anesthesia ibid 1910, **26**, 260-286

[5] Janeway H. H and Ewing E. M. The Nature of Shock, Ann Surg., 1914 **59**, 158-175

[6] Morison R. A. and Hooker D R. The Vascular Tone and the Distribution of the Blood in Surgical Shock Am Jour Physiol. 1915 **37**, 86-93 Muns, W E. Changes in the Peripheral Circulation Following Intestinal Trauma Proc. Soc. Exper Biol. and Med. 1914-1915 **12**, 87 90 Seelig M. G and Lyon, E. P The Condition of the Peripheral Blood Vessels in Shock, The Journal A. M A., Jan. 2 1909 pp 45-48

The heart and respiratory mechanism are probably affected mainly by the loss of circulating fluid The following facts should be emphasized that the resulting condition is essentially one of loss of circulating fluid, that the process takes place in the area traumatized and in that sense it is peripheral, that the primary involvement of the nervous system is probably mainly in regard to the local reflexes, and that the higher nervous mechanism is affected secondarily

I have never been able to produce in an etherized animal the shock produced by excessive nervous irritation which is the most popular clinical cause of the condition A careful review of experimental work leads me to believe that other investigators have experienced the same difficulty While all traumatic procedures, such as crushing joints, evulsing nerves, etc, will produce marked respiratory and blood pressure changes, it must be very rare for the condition of shock to develop This must be due either to the fact that nerve impulses are not the primary factors in the cause of shock, or that ether protects the nervous mechanism from excessive stimulation

The phenomena of so-called psychic shock, the shock of railway and other painful accidents, all testify that at least in some instances the nervous mechanism may be a factor in some forms of shock An explanation of the cause of the condition in these cases is most difficult

I have studied recently the effect of different traumatic procedures on decerebrated animals Exposure of the abdominal viscera produces the condition of shock in exactly a similar manner in a decerebrated animal as in an etherized animal No difference in the development of the process could be noted Traumatic procedures on the limbs and nerves of a decerebrated animal, while producing marked individual variations, produce greater changes in respiration and blood pressure than in etherized animals and in a very small percentage of instances death is actually produced This condition probably corresponds to the shock produced by accidents, I am not sure it has any relation to the shock produced under an anesthetic

In the few instances in which death occurred, I was unable to determine the cause However, I believe the factors involved will be found to be either excessive inhibition as held by Meltzer,[2] a decrease in general tone due to changes in the synapses as suggested by Hill,[7] or excessive depressor stimulations If the latter is true, work along the line pursued by Ranson[8] should give positive results

It is highly improbable that physiologic fatigue will be found to play any primary part in the production of shock, or at the most in only a small percentage of instances The belief that physiologic fatigue is not a common cause of shock during anesthesia is based on several facts The work of Porter[9] which demonstrated that the vasomotor center is not primarily fatigued by excessive stimulation and that electrical stimulation of the major nerve trunks for many hours did not produce shock, and my own experiments,[10] which show that it must be rare indeed for shock to be produced in an etherized animal by excessive trauma to nerves and limbs, prove that from the experimental standpoint, fatigue is not of great importance

In a recent series of experiments I have investigated, quantitatively, the relation of nerve impulse to shock Utilizing the method devised by Forbes and Miller[11] to detect the changes in potential at the brain stem of decerebrated animals following nerve stimulation, I have attempted to determine quantitatively the amount of nerve reaction produced by various operative procedures

The method, which did not differ from that described by Forbes and Miller except that the electrodes were made large enough to connect both sides of the brain stem, consisted of connecting the brain stem of a decerebrated cat to a galvanometer and recording the changes in potential produced by different traumatic and operative procedures These changes in potential depend on nerve reaction and have been shown to be a true index of the nerve impulse[12]

Many difficulties were encountered in the investigation, the most important of which was to obviate the mechanical factor Very slight movements of the brain stem will produce deflections of the galvanometer This error was never fully obviated However, by carefully immobilizing the animal and making careful controls it was possible to determine some of the effects of traumatic procedures Of course only comparative studies could be made

The results of this investigation are difficult to interpret, and until more experiments are performed conclusions must be cautiously made However, the following facts seem true (1) traumatic and operative procedures on the limbs, joints and nerves produce a very marked nerve response as shown by the deflection of the galvanometer, (2) exposure of the abdominal viscera produces either no deflection or a very slight one, and (3) pulling on the mesentery and other viscera produces a definite deflection but not so great as that usually produced by trauma to a leg In fact, it was possible to expose the viscera and cause shock in an animal without producing any deflection of the galvanometer

If future experiments, in which all errors are eliminated, prove these results to be absolutely true, it will be justifiable to conclude that the nerve impulse bears no qualitative relation to shock The idea that shock due to visceral trauma is not dependent on a primary impairment of the higher nerve mechanism will be substantiated

In the experience of some surgeons a small number of cases have occurred in which the amputation of a limb, an operation for an ununited fracture, or similar operations have resulted in conditions of shock The experimental investigator has never been able to explain the cause of shock in these cases because he has not been able to reproduce them The recent work of Bissell,[13] and of Porter[14] will probably clear up these obscure cases Bissell has shown that in patients suffering from fractures of the long bones there is a great increase in the fat content of the blood Some of the patients dying with symptoms of surgical shock following operation which involved considerable trauma to large areas of fat showed a large amount of fat in the lungs, death being due undoubtedly to pulmonary fat embolism Porter, while studying shell shock, was led to consider the possibility that fat embolism was the cause of the low blood pressure found in cases in which fractures had occurred Undoubtedly in a small percentage of cases in which hitherto a diagnosis of surgical shock has been made it will be found that the patients are suffering from pulmonary fat embolism

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[7] Hill Further Advances in Physiology, London, 1909, p 178

[8] Ranson, S W, and Billingsley, P R The Conduction of Painful Afferent Impulses in the Spinal Nerves, Am Jour Physiol, 1916, 40, 571 584 Ransom, S W, and von Hess, C L The Conduction Within the Spinal Cord of the Afferent Impulses Producing Pain and the Vasomotor Reflexes, Am Jour Physiol, 1915, 38, 128-152

[9] Porter, W T The Effect of Uniform Afferent Impulses on the Blood Pressure at Different Levels, Am Jour Physiol, 1907 1908, 20, 399 406 Porter, W T, Marks, H K, and Swift, J B The Relation of Afferent Impulses to Fatigue of the Vasomotor Center, ibid, 444 450

[10] Mann, F C Footnotes 1 and 3

[11] Forbes A and Miller, R H Detection with the String Galvanometer of Afferent Impulses in the Brain Stem and Their Abolition with Ether Anesthesia, Am. Jour Physiol, 1916, 40, 148 149

[12] Forbes, A, McIntosh, R, and Sefton, W The Effect of Ether Anesthesia on the Electrical Activity of Nerve, Am Jour Physiol, 1916, 40, 503 513

The endocrine glands have been given as factors in the etiology of shock This idea has been largely associated with the suprarenals and is based on the facts obtained as follows Elliott[15] showed that stimulation of an afferent nerve produced a discharge of epinephrin, Cannon and De La Paz[16] demonstrated that there was a discharge of epinephrin during emotional states, Corbett[17] investigated the epinephrin content in shocked animals and found it greatly diminished Bedford and Jackson[18] found that in conditions of low blood pressure there was an increased amount of epinephrin in the blood Bedford[19] showed that it was an active secretion of the suprarenals Stewart and Rogoff[20] concluded from their work on the effect of nerve and drug stimulation on the suprarenal that the discharge of epinephrin from the suprarenal is not indispensable to life or health My own experiments[21] have demonstrated that an animal may live for several days after the removal of all suprarenal tissue and maintain an apparently normal condition in all respects, including emotional reactions, and that an animal will survive and be maintained normally with only one half to one third of one suprarenal which has been separated from all nerve supply

In all probability some of the endocrine glands, particularly the suprarenals, enter as factors in the complex condition of shock, but it is quite difficult to determine to what degree they participate as primary active agents in producing the state or how much they are affected by the low blood pressure and the changes incident to the condition itself

There is no doubt that an anesthetic may prove harmful to a patient, but it is not possible to state to what degree ether is a factor in the production of shock Henderson[4] has pointed out the dangers of light anesthesia Certainly an animal can be killed in the very early stages of etherization by a too high concentration administered during excessive respiration, but this is more of an anesthetic than a shock problem The effect of trauma and nerve stimulation during very light etherization probably causes harmful results mainly because of the ensuing struggling which they produce, as was shown by Gatch, Gann and Mann,[22] than for any other cause

There seems to be little definite data as regards the question of whether hemorrhage under an anesthetic affects the individual more than without the anesthetic My own experiments are too few at present to allow conclusions to be drawn Also it has not been determined to what extent the loss of blood changes the reaction to definite tension of ether Boothby[23] cites a case in which it was necessary to maintain the anesthetic tension the same as it was before (47) after a severe hemorrhage

The result of excessively deep etherization is more nearly related to shock Animals may be anesthetized for nine to ten hours with an ether tension just sufficient to maintain anesthesia for operative work without the production of a condition resembling shock On the other hand, a higher tension which will depress blood pressure to or below the critical level and if maintained for one hour will produce most of the symptoms of shock In such instances the blood pressure usually remains low and is not restored after an hour or two of artificial respiration The animal depressed by ether, however, differs from the animal in shock in the fact that the former will become conscious and require more anesthetic even with a low blood pressure, while the latter usually will not This depressed condition following deep etherization, while it is primarily due to the ether, is soon complicated by the condition itself, namely, low blood pressure, subnormal temperature, etc The shock-like condition resulting is quite largely due to these secondary factors

While ether depresses the vasomotor center directly it should be noted that the vascular system is affected by deep etherization in many other ways Gatch[24] has pointed out that deep etherization also affects blood pressure by loss of muscular tone and a decrease in the action of the respiratory pump

While studying the vascular and respiratory reflexes under various tensions of ether, I observed one phenomenon which may have a direct bearing on the cause of some cases which were diagnosed as shock Stimulation of the vagus nerve and most of the other mixed nerves by a suitable electrical stimulus will produce inhibition of *respiration* Simple stretching of some nerves, particularly the brachial plexus, will sometimes stop respiratory movements It is interesting to note that ether never blocks these inhibitory reflexes, but as long as the respiratory center acts the reflexes are present As the respiratory mechanism is depressed by the higher tensions of ether the inhibition following nerve stimulation usually becomes more pronounced Finally, it is possible to use a tension under which respiration, though greatly depressed, would afford enough ventilation to keep the animal alive but which would be inhibited for so long following nerve stimulation that the animal would in all probability die if artificial respiration were not maintained This combination of deep anesthesia with inhibition of respiration may have been a factor in some cases which were called shock

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[13] Bissell, W W Pulmonary Fat Embolism—a Frequent Cause of Postoperative Surgical Shock Surg Gynec. and Obst. 1917 **24**

[14] Porter W T Shock at the Front Boston Med. and Surg Jour 1916 **175**, 854

[15] Elliott T R The Action of Adrenalin Jour Physiol 1905 **32** 401-467

[16] Cannon W B and De La Paz, D Emotional Stimulation of Adrenal Secretion Am Jour Physiol 1911 **28**, 64-70

[17] Corbett J F The Suprarenal Gland in Shock, The Journal A M A. July 31 1915 pp 380 383

[18] Bedford E. A, and Jackson H C The Epinephric Content of the Blood in Conditions of Low Blood Pressure and Shock Proc. Soc. Exper Biol and Med 1916 **13**, 85-87

[19] Bedford E A The Epinephric Content of the Blood in Conditions of Low Blood Pressure and Shock, Am Jour Physiol 1917 **43**, 235 257

[20] Stewart G N and Rogoff J M Liberation of Epinephrin, Jour Pharmacol. and Exper Therap. 1916 **8**, 205 Liberation of Epinephrin from Adrenals ibid 479 Epinephrin Content of Adrenals Jour Exper Med. 1916 **24**, 709

[21] Unpublished data.

[22] Gatch W D Gann D, and Mann F C. The Danger and Prevention of Severe Cardiac Strain During Anesthesia The Journal A. M A, April 26, pp 1273-1278

[23] Boothby W M The Determination of the Anesthetic Tension of Ether Vapor in Man with Some Theoretical Deductions Therefrom as to the Mode of Action of the Common Volatile Anesthetics, Jour Pharmacol and Exper Therap 1913 1914 **5**, 379 392

[24] Gatch W D The Effect of Laparotomy on the Circulation Tr Am Gynec. Soc. 1914 **39**, 180-192

Bernstein[25] seems to have been the first to investigate the place in the reflex arc on which the general anesthetics (chloroform) acted By destroying the blood supply to a portion of the spinal cord of an animal so that certain segments would not be affected by the anesthesia, he showed that stimulation of a sensory nerve whose cell body was in an anesthetized part would not produce a motor response, but that the stimulation of a sensory nerve whose cell body was not anesthetized would produce a motor response This proved that chloroform acted first on the sensory side of the reflex arc Deeper anesthetization depressed the motor side as well

In a previous investigation of the condition of shock I concluded that ether prevented afferent impulses from reaching the higher nerve centers Recently Forbes and Miller,[11] by means of the galvanometric method previously described, have clearly demonstrated this fact in a very delicate and graphic manner By connecting a galvanometer to the brain stem of a decerebrated cat they were able to show that a weak stimulation of the sciatic nerve produced a deflection of the galvanometer corresponding to a difference of the potential following nerve response, after etherization this deflection did not occur but reappeared when the animal recovered from the anesthetic Undoubtedly ether does block afferent nerve impulses to the higher centers

SUMMARY

Surgical shock, using the term in the sense employed by the surgeon, occurring during general anesthesia may be due to several causes For a correct understanding of the physiologic mechanism involved it is necessary to differentiate between these possible causes

The most common cause of the symptoms of shock is free hemorrhage It should be emphasized that all persons do not react the same to loss of blood and that the estimation of hemorrhage during operation is very inaccurate

Another common cause of shock is trauma to the viscera Under this condition shock is due to loss of circulatory fluid in the traumatized areas, mainly brought about by a local peripheral mechanism

Shock produced by excessive nerve irritation under an anesthetic is probably a much more rare occurrence than clinical reports would seem to show The mechanism involved in these cases is unknown In cases of fractures and operations involving trauma to large areas of fat in which shock is diagnosed, pulmonary fat embolism may be a cause

Some of the endocrine glands, particularly the suprarenals, are factors in some causes of shock, but it is very difficult to determine to what degree they participate as primary active agents in producing the state, or how much they are affected by the low blood pressure and the changes incident to the condition itself

The nerve impulse probably bears no quantitative relation to shock

Deep etherization may produce most of the symptoms of shock The continued depressed state following deep anesthesia, while primarily due to the anesthetic, is soon complicated by the resulting factors of low blood pressure, subnormal temperature, and other changes

Some cases of the conditions diagnosed as surgical shock may be due to a combination deep anesthesia with reflex inhibition of respiration

Ether certainly does block afferent impulses to the higher centers but some of the reflexes involving the medullary centers, particularly those which inhibit respiration, are not blocked when very strong stimuli are employed

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ABSTRACT OF DISCUSSION

Dr Fenton B Turck, New York I have carried out investigations on shock in animals under anesthesia with the abdomen open and with the abdomen closed. The two conditions differ I wish to call attention to one of the important findings in my investigations A Brücke lens, used by the older physiologists, I found valuable in examining the vascular supply of the viscera in shock. The first change found taking place in the exposed viscera was venous dilatation as the first sign of shock, followed by changes in blood pressure and temperature The various stages of these changes, beginning as Dr Mann reports, with slight rosy tint, then going into the bluer shades, finally develop into complete shock with large tortuous vessels I reported, in 1896, shock as a local peripheral disturbance first involving the veins of the viscera Dr Crile came to Chicago at the time I was continuing my experiments in shock and brought out his vasomotor center exhaustion theory in his vivid fashion, afterward presented as the Cartwright lectures Kocher and others have practically disposed of the question of this vasomotor center exhaustion theory My more recent investigations have been carried out on histologic lines, with sections fixed in vivo, and confirm my earlier findings If we expose the viscera to the air and find shock intervening, a certain selected area is held and fixed in fixing solution and section is made to observe the exact changes taking place in the advancing stages of shock. We obtained sections from one to six hours, of the different portions of the viscera of various animals in shock, and all presented similar phenomena First there is an alteration in the venous walls, especially "waxy" changes of the muscle cells, with relaxation and turgescence of the veins The contents of the veins then pass out through the walls, and asphyxiation of the muscle cells of the walls and tissues occurs, which gives the picture of so-called "acidosis" Also, the experiments that I have published in anesthesia, chloroform, ether and other anesthetics being used, set forth how we found that there was an excretion into the intestines of the anesthetic used After prolonged anesthesia we plugged up the esophagus so none of the anesthetic could reach the stomach direct, and scraped off the mucous membrane and recovered the anesthetic from the mucosa The changes were very manifest in the abdominal viscera as a local condition similar to the conditions in shock. The experiments showed that there was a loss of antiferments in the blood. The "acidosis" was often benefited by alkalies The greatest injury was exposure of the viscera to air I demonstrated the value of a rubber dam for the purpose of protecting from the air the whole of the viscera during operative procedures, and the introduction into the abdominal cavity of heat Small rubber bags filled with hot water were placed in the abdominal cavity, and small bags attached to a stomach tube were introduced into the stomach, most marvelous results being produced The heat stimulation was not remarkable for its restoration of the local circulation alone, but of the whole of the viscera I do not know of anything so striking as the effects compared with the animal used as a control. Both animals were in shock, but one had bags filled with hot water placed in the abdominal cavity, and had the viscera covered with a rubber dam to prevent evaporation and the dissipation of heat, and hot water bags in the stomach, thus keeping up the continuous stimulation of the venous circulation with the reduction of shock.

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[25] Bernstein, J Ueber die physiologische Wirkung des Chloroform's in Moleschott, J Untersuch z. Naturl d Mensch u d Thiere, Giessen, 1870, 10

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Shock appears to be a local manifestation obsace
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may also be similar to manifestations of s by exposure
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DR SAMUEL J MELTZER New York to be -
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of a touch of malaria ' We ought to learn ading, eter-
internal hemorrhage or a fat embolus etc., ding, the ma,
shock Shock may occur without these phenomagn cases cids,
without a fall in blood pressure. the ime

I said years ago that shock is an inhibitory
I am afraid that those who do not agree with me do ood
understand my point of view I do not deal with the at
of shock but only with its *nature* I said that in shock se ar
or many, or all nerve cells and perhaps also other funct nte,
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by a variety of causes of which trauma is one r's
example is the temporary depressing effect of cutting of
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of the brain is probably a fact in spite of the disbelief i
of our modern surgeons They may change their minds a
that as they changed about antisepsis The terrific
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When shock affects many cells of the body, cell activit k
will be greatly reduced, hence perhaps, the reduction e
carbon dioxid in the body fluids Acapnia therefore, is pes
haps the *result* of shock and not the *cause* of it e

DR. FRANK C MANN Rochester Minn In regard to the discussion of hemorrhage in connection with the shock problem, I do not mention hemorrhage as a cause of shock but as a cause of the symptoms of shock. In a paper with any clinical application I think it is important to emphasize that, because in clinical reports of patients who have been said to have died of shock, usually it is found that a certain amount of hemorrhage has also occurred It is known from experiments as well as from clinical observation that different persons do not react the same to hemorrhage, and in a certain proportion of cases diagnosed as shock, hemorrhage was undoubtedly the cause of the condition and the diagnosis from a purely technical conception of shock was incorrect

In regard to Dr Meltzer s inhibition theory I am not sure that the results we get on exploration of the abdominal viscera in which there is a stasis in the blood vessels is not due to an inhibitory mechanism but I am sure that if this is the case it involves the lower neurons and not the higher nerve centers I feel confident of this because in a series of experiments in which the cervical cord was sectioned, dilatation and stasis in the blood vessels of the viscera took place on exposure in the same manner as when the higher centers were intact. When we devise some method of demonstrating psychic shock experimentally, inhibition will probably be found to be a factor

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Street Accidents Increase—There have been in New York during the last six months 12 284 street accidents, as against 10 593 for the corresponding period in 1916 There was a 20 per cent increase in accidents last June as compared with June, 1916 The report of the commissioner of highways just published shows that 63 per cent. of the accidents are recorded between noon and 8 o clock in the evening, as compared with 24 per cent. between 4 and 8 a. m. This increase in the number of accidents has prompted Police Commissioner Woods to make an appeal to merchants, manufacturers and truckmen requesting them to have the bulk of their heavy hauling done between 4 and 8 a m., causing a better distribution of traffic.

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maximal value for lipoids in this series of 131
gitis, occurred in Case 786, which showed total
n imr of 16 3 per cent On another occasion, this
rable patient showed approximately 9 per cent of
source but following restriction of diet, the lipoids
T groups
decreas d to nearly 1 per cent

An analysis of the lipoids before and after ether anesthesia in one case deserves attention It showed that the total fatty acids were increased after the operation, whereas the lecithin and cholesterol remained unchanged The increase in total fatty acids was followed later by a fall in the same below that of the patient's level before anesthesia

The blood lipoids do not rise and fall with the changes in the blood sugar Thus, the moderately severe cases of diabetes showed higher blood sugars than did the severe diabetics The blood sugar was not nearly as accurate a test of the severity of the case of diabetes, measured from all points of view, as was the lipoids of the blood It would appear that a knowledge of the blood lipoids would be distinctly more helpful from the prognostic point of view than a knowledge of the blood sugar Cases of diabetes with high lipoids present a less favorable outlook than ases with low lipoids

ABSTRACT OF DISCUSSION

DR. R GRIFFIN New York During the past year at the Presbyterian Hospital I have been more or less interested in the macroscopic appearance of the plasma for fat. As Dr Joslin has pointed out, this is not an accurate guide to the amount of lipemia as some patients showing turbidity of the plasma, according to quantitative chemical methods, have no increase in the fat content of the blood over normal It was first brought to my attention by noticing in severe cases of diabetes that there was a marked increase in the turbidity of the plasma, and when I say a marked increase I mean an
ppearance which looks very much like thickened cream
there was one case which, in view of what Dr Joslin has
pad you, may be of some special interest relative to the value
tiothe blood fats from the standpoint of the patient's sub-
diabet tolerance. I do not want to draw any conclusions
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It is desirable to refer to the fat in the blood as blood lipoids, because the so-called blood fat is present in several forms Of these lipoids about 50 per cent exist as combined fatty acids, mainly oleic and palmitic, 30 per cent more or less is in the form of cholesterol (and cholesterol esters), while the remaining 20 per cent is composed of lecithin and related bodies which are distinguished by their content of phosphorus The lipoids represented by the cholesterol and lecithin groups constitute most of the "built in" fat of the body If a term is desired to cover these two substances, the already existing description cytolipoids is suitable A fat man is good natured, his fat tissue like his disposition is free from acid qualities tion were not maintained This combination of deep anesthesia with inhibition of respiration may have been a factor in some cases which were called shock

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* From the Laboratory of Biological Chemistry of the Harvard Medical School and the Laboratory of the New England Deaconess Hospital

* Read before the Section on Practice of Medicine at the Sixty Eighth Annual Session of the American Medical Association New York June, 1917

Bernstein[25] seems to have been the first to investigate the place in the reflex arc on which the general anesthetics (chloroform) acted By destroying the blood supply to a portion of the spinal cord of an animal so that certain segments would not be affected by the anesthesia, he showed that stimulation of a sensory nerve whose cell body was in an anesthetized part would not produce a motor response, but that the stimulation of a sensory nerve whose cell body was not anesthetized would produce a motor response This proved that chloroform acted first on the sensory side of the reflex arc Deeper anesthetization depressed the motor side as well

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Another common cause of shock is tra' ᴗnt of the
viscera Under this condition shock is d variations
circulatory fluid ın th- ıs overstıced ᴗnt above or
brought about hv v the 91 per cent mentioned We
Shock produ ımend this method to clinicians in the
an ᴗanc stuᴗ ınd treatment of their patients

The Bloor method[1] is sufficiently simple for clinical use[2] A single analysis can be performed in an hour and a half, but a series of twelve analyses could be completed in a day An analysis for cholesterol requires half again as long, and for lecithin twice the time The Bloor method is advantageous therefore (1) because by it at least 90 per cent of all the blood lipoids are determined and (2) because it furnishes information of a representative character concerning all the blood lipoids, since by means of it all the fatty acids existing as glycerids are thus obtained, as well as those in the cholesterol esters and in lecithin

In the accompanying table are embodied the data on which the conclusions which follow it are based For comparison, in the first line is inserted the average figures for the analyses of twenty-three normal bloods

ing deep aneᵹor The table shows the number of bloods
thetic, is soon ᶜercentage of lipoids obtained by Bloor's
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ᴗeneral the mild diabetics showed a posi-
ᴗnydrate tolerance of 50 or more grams, the
Dʀ 'ıate cases of diabetes a tolerance between 50 and
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tant s were also considered in the grouping of the
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		Lecithin		Cholesterol			Glycerids		Total Lipoids	
		Plasma, per Cent	Corpuscles, per Cent	Whole Blood, per Cent	Plasma, per Cent	Corpuscles, per Cent	Plasma, per Cent	Corpuscles, per Cent	Plasma per Cent	Blood Sugar per Cent
W T	30	0.21	0 42	0.22	0 23	0.20	0 10	0	0 68	0.10'
	0 32	0 24	0 42	0 24	0 26	0 21	0 38	0 18	0.98	0 17
	0 33	0 28	0 40	0 26	0 30	0 20	0 46	0 23	1 16	0.26
	0 40	0 40	0 40	0 41	0 51	0 24	0.64	0 38	1.98	0.23
	0 32	0 24	0 48	0 24	0 26	0.22	0 41	0 24	1 01	
	0 82	0 24	0 41	0 25	0 25	0 21	0.36	0.13	0.97	
58	0 39	0 38	0 40	0 83	0 48	0.22	0 82	0.32	1 81	
, 64	0 41	0 41	0 40	0 46	0 57	0 25	0.86	0 43	2 07	

of differentiation was fairer than to separate the bloods on the basis of patients alone

All types of diabetes are distinguished by a marked increase in lipoids of the blood, and the general statement can be made that the increase is progressive with the seriousness of the disease Thus, the average quantity of lipoids obtained by Bloor's method in the whole blood amounted to 0 59 per cent in nineteen normal individuals, but was increased to 0 83 per cᴗ
in thirty-two mild diabetics, to 0 91 per cent in thᴗ
seven moderately severe diabetics, and to 1 41
cent in fifty-five severe cases of diabetes
increase holds not alone for the lipoids obtained by
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prolonged diabetic hyperlipemia, since B'
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which is characterized by an increase in the t
acids alone In Dr Gray's detailed paper,
contain many facts not touched on here, he

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[1] Bloor Jour Biol Chem, 1914, **17**, 379

[2] The latest modifications are given by Joslin The Treatment of Diabetes Mellitus, Ed 2, Philadelphia, Lea and Febiger, 1917

nce has that the variation in the lipoids takes place ac- in the plasma, in fact, with lecithin and cholall terol there is practically no change in the corpuscus between normal individuals and the different types n diabetes

So large a number of the cases of mild diabetes were ccompan by renal involvement that this group is wo classes, and the average analyses of abetic cases showing nephritis are com- twenty mild diabetics that were free from itis The table shows a remarkable uniformity of results in the two groups and this uniformity is so close that it holds not only for the lipoids determined by Bloor's method, for the lipoids in the plasma, but also for the constituent lipoids, the fatty acids, lecithin and cholesterol

From analysis of the individual specimens of blood of normals and diabetics it is also possible to arrive at a lipoid threshold analogous to the blood sugar threshold To be sure, this is not absolutely definite, but it is sufficiently distinct, for the number of mild diabetics with low lipoids which reach the high level of normal individuals is negligible With Bloor's fat method this normal lipoid threshold can be stated to be not far from 0 67 per cent As a matter of fact only 9 per cent of 131 diabetic specimens of blood showed a level below this

The fifty-five analyses made on severe diabetics were also divided into two groups, according to the presence or absence of acidosis With the recent work of Fitz on beta-oxybutyric acid and its allies in the blood, it is, however, questionable whether one is justified without blood analyses in considering a case of diabetes to be actually free from acidosis But in the main it is true that in the one group acidosis was distinctly present and to a marked degree, and in the other, the ordinary signs of acidosis, such as the ferric chlorid test for diacetic acid, the Fridericia test of the alveolar air, and the Van Slyke test of the blood, were absent The compilation of the data gave unexpected results, and at first sight would indicate that the patients with severe diabetes that were free from acidosis showed a higher lipoid content than their companion diabetics that presented all the typical signs of acid poisoning But if the entire series of 131 bloods is examined to determine the relation between acidosis and the lipoids, the evidence is clear that the cases of diabetes with acidosis exhibit a higher level of total lipoids than the cases without acidosis It is an interesting fact, however, and one worth further study, that when the bloods obtained during acidosis are classified according as to whether the acidosis is mild, moderate or severe, the lipoids are found to be nearly twice as great in those bloods obtained from patients showing moderate acidosis as from those patients who showed severe acidosis We hesitate to even speculate on the explanation of these figures, until a more detailed study of the individual protocols has been made

In general, it may be said that the lipoids in the blood decrease with fasting, but more evidence is needed on this point, for it is quite possible that the extent of adipose tissue in the body is an important factor Whereas a diet rich in fat favors an increase of lipoids in the blood, it is certainly true that fat is not the only element in the diet which must be considered in this regard, for a study of food charts of the patients indicates that the presence of carbohydrates in the diet is an important element

maximal value for lipoids in this series of 131 occurred in Case 786, which showed total erable of 16 3 per cent On another occasion, this source patient showed approximately 9 per cent of groups but following restriction of diet, the lipoids decreased to nearly 1 per cent

An analysis of the lipoids before and after ether anesthesia in one case deserves attention It showed that the total fatty acids were increased after the operation, whereas the lecithin and cholesterol remained unchanged The increase in total fatty acids was followed later by a fall in the same below that of the patient's level before anesthesia

The blood lipoids do not rise and fall with the changes in the blood sugar Thus, the moderately severe cases of diabetes showed higher blood sugars than did the severe diabetics The blood sugar was not nearly as accurate a test of the severity of the case of diabetes, measured from all points of view, as was the lipoids of the blood It would appear that a knowledge of the blood lipoids would be distinctly more helpful from the prognostic point of view than a knowledge of the blood sugar Cases of diabetes with high lipoids present a less favorable outlook than cases with low lipoids

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ABSTRACT OF DISCUSSION

DR. R GYELIN New York During the past year at the Presbyterian Hospital I have been more or less interested in the macroscopic appearance of the plasma for fat. As Dr Joslin has pointed out, this is not an accurate guide to the amount of lipemia, as some patients showing turbidity of the plasma, according to quantitative chemical methods, have no increase in the fat content of the blood over normal It was first brought to my attention by noticing in severe cases of diabetes that there was a marked increase in the turbidity of the plasma, and when I say a marked increase I mean an appearance which looks very much like thickened cream There was one case which, in view of what Dr Joslin has told you may be of some special interest relative to the value of the blood fats from the standpoint of the patient's subsequent tolerance. I do not want to draw any conclusions from one case, but a brief outline will perhaps be of interest This patient had a lipemia so marked that it looked like thick cream, at the same time the blood carbon dioxid was slightly depressed, according to the combining method it was about 25, and the blood sugar was over 500 The patient showed symptoms of a mild acidosis and it took six days of fasting to clear them up The blood carbon dioxid combining capacity came up to 45 and stayed up, and the blood sugar came down 500 to 250 in two months' treatment, with a great many fast days thrown in. That patient never developed a tolerance of over 500 calories in spite of the fact that foods were shifted around in various ways to determine whether there was any class of food to which she was particularly susceptible. All the time the appearance of the plasma was that of thick cream, whereas the blood sugar and blood combining capacity stayed where it was It was not until after two months of treatment that the blood plasma lipoids became almost clear, the blood sugar and blood combining capacity staying about where they were before The patient's tolerance was increased almost twofold inside of two weeks after the plasma became clear Now, are we going to find that the fat content of the blood, that is, the lipoids, have any relation to the patient's tolerance? That is, is it going to be found when we diminish by treatment the lipoids that the patient s condition is going to improve? This particular case has been in marked contrast to that of two other patients whose blood lipoids, at least from the gross appearance, decreased, and whose blood cleared up at the same time that the blood carbon dioxid combining capacity went up and the blood sugar came down

Dr F M Allen, New York I do not believe any can be said offhand on a subject as little understood blood lipoids A subject is always opened up wh necessary methods become available, and it is to be that the methods of Bloor will serve to bring light o problems These extensive observations of Drs Josl Gray are important pioneer work on the clinic A fundamental question back of these phenomena is why fat behaves in this way in diabetes Evidently it is one more illustration of the fact that diabetes is an impaired assimilation of all foods, and not merely of carbohydrate But the mechanism by which fat is normally taken up from the blood, and which breaks down in diabetes, is unknown We have some animal experiments in progress which may later yield a little information concerning it One point which perhaps be shown when Dr Joslin's full figures are ed is the possible influence of lipemia on the carbon capacity of the blood When the plasma is so full , what is the relation between its carbon dioxid capacity and the values in the alveolar air? Therapeutically, it is always desirable, and generally possible, to clear up a pathologic lipemia We have had some patients in whom heavy lipemia was thus cleared up and who are alive now High lipemia was formerly regarded as a very bad prognostic sign, and presumably an intractable lipemia may still be so considered Dr Geyelin has had some of the severest cases of diabetes ever described The one which he reported with Dr Du Bois was perhaps the severest ever studied by accurate methods There is a possible question whether the metabolism is in some cases specially defective on the fat side and in other cases on the carbohydrate side Distinctions in types of diabetes have generally proved unreal Probably the apparent differences in lipemia and other symptoms will be explainable by diet and other special influences

Dr Horace Gray, Boston Dr Geyelin's point, as I understand it, is that two of his patients, as they improved, lost their cloudy plasma, while another patient, who improved
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STANDARDIZATION OF SERUMS AND VACCINES

SOME DIFFICULTIES AND MISUNDERSTANDINGS

G W McCoy
Director, Hygienic Laboratory, U S P H S
Washington, D C

The misunderstanding that exists even among usually well informed health officers and physicians in regard to the standardization of biologic products is sufficient reason for a brief consideration of the subject For example, under the heading "Standardization of Biological Products" on page 1416 of The Journal, May 12, 1917, a note states that the official Conference of State and Territorial Health Officers adopted a resolution recommending that the Public Health Service "establish and promulgate standards as to potency with reference to all biologic products, vaccines and serums, not only with relation to diphtheria and tetanus antitoxin, but especially with relation to antimeningococcus and pneumonia serums, and vaccines for typhoid fever, paratyphoid fever, and bacillary dysentery"

A standard is defined as "that which is set up and established by authority as a rule for the measure of quantity, weight, extent, value or quality, especially the original specimen weight or measure sanctioned by government as the standard pound, gallon, yard, width, or the like"

One sees that there are strict limitations as to what may be allowable under the definition of a standard Those who have devoted the most time and have had imposed on them the greatest responsibilities in relation to the field of biologic products have thus far been willing to recognize as standardizable only a small number of preparations Firmly based on substantial scientific grounds, standards have been formulated for the antitoxins of diphtheria and tetanus In the case of the former we have as a standard a serum which laboratory tests and long observation have shown to be constant, a true standard by which specimens of antidiphtheria serum can be measured, though perhaps not quite so accurately as we can measure things which do not depend on living creatures (guinea-pigs) for the indications that the end of the measure has been reached With slight modifications, what has been said of diphtheria antitoxin may be said of tetanus antitoxin It is not the purpose to go into the details of the beautifully worked out methods of testing these antitoxins, but the standards have now been in use for a number of years, and are very satisfactory, though unless large numbers of test animals are used, only approximate measurements of the strength (unitage) of given specimens of serum may be made A most important point is the fact that the measure of the antitoxic value of these serums is also a measure of the usefulness of the product in clinical use

At the Hygienic Laboratory, much time has been devoted also to the standardization of antityphoid vaccine, and there has been devised a tentative standard for this agent This tentative standard requires that the dose intended for human beings, when administered to rabbits in a certain manner, shall provoke a tain agglutinin response It was recognized that the utinin response was not necessarily a measure of prophylactic value of the vaccine as applied to but it was felt that the procedure would impro uality of the vaccine on the market, which had been found to be very variable Experience has shown that it is advisable to furnish a standard vaccine and to require that commercial products shall equal that in agglutinin producing properties, in this manner, inequalities in results, due to differences in technic, are eliminated

This completes the list of preparations for which there are standards, only a small fraction of the great number of biologic products on the market This does not mean that attempts at standardizing other products have not been made It simply means that science has not progressed far enough to enable the proper authorities to set up a rule for the measurement of preparations which are of recognized value

There are three fundamental difficulties in standardizing biologic products The first of these is the fact that none of the factors is constant We are dealing with living organisms in which vital processes are going on, or with the products of these vital processes, and we know that neither processes nor products are constant It is true that certain of the toxins and antitoxins are relatively stable, when kept under certain conditions, and this stability was at once utilized to establish such standards as we now have

The second great difficulty is the fact that animals must be used in making comparisons between the standard and the preparation to be investigated Individual laboratory animals vary in their reactions to toxic agents to which they are susceptible, as well as to the antitoxic agents, these terms being used in a broad sense

The main difficulty, however, is the fact that we lack laboratory animals susceptible to many of the agents which we need to test, thus, the ordinary staphylococcus, the gonococcus, and the pertussis bacillus are good examples of organisms which we cannot submit to animal tests

These points make it clear that, in the very nature of things, we cannot hope to have standards which are comparable to those of a purely physical nature, or even to those having a chemical basis

When a preparation is in the purely experimental stage, that is, before clear evidence as to its value is available, it would be a waste of time and energy to try to standardize it officially, and the same may be said of products for the value of which there is no substantial basis

Certain preparations which have passed the experimental stage within recent years, and certain others the value of which has long been established, are without recognized standards, as will be shown presently

Aside from the purely technical difficulty of standardizing many preparations is the fact that the establishment of an official standard is likely to be regarded as setting the stamp of governmental approval on claims made for the usefulness of the preparations It would certainly be contrary to public interest if official action capable of such interpretation should be taken The German authorities have established a number of provisional standards for biologic preparations, but the wisdom of the policy is debatable

SPECIAL PREPARATIONS

Some of the special preparations that have been mentioned as being in need of standardization, a need that no one will deny, will be considered

Antimeningococcus Serum—The effectiveness of this agent seems to be established, but experience has shown that at least some specimens of serum have been found to be useless in certain outbreaks of men[illegible] reason for this, of course, is that, from [illegible] c point of view, there is a very considerable variation in the organisms isolated from various sources The meningococci have been divided into groups depending on their serologic reactions, but there is no agreement among workers as to the number of groups nor the characteristics which govern the differentiation of the several groups All antimeningococcic serums are polyvalent, that is, contain antibodies for various cultures of the organism, but just what constitutes sufficient polyvalency is not determined It would not be sufficient to say that a serum shall represent a minimum number of different cultures, because this might overlook whole groups, nor would it suffice to say that all groups of the organism must be represented, although this is inquired into during governmental inspections, because of the lack of agreement as to grouping and the fact that immunologic relations of individual members of groups vary considerably These difficulties have not deterred those who are interested in the subject from endeavoring to establish some criterion of the value of the serum

All serums made in the United States are submitted to some form or other of potency test Several manufacturers determine the agglutination titer of the serum, others, the titer in a complement deviation complex, while others make an opsonic index determination An animal protection test is also in use Unfortunately, there is no agreement among those who have given this subject special attention as to which test is the more satisfactory, no proposed standard has sufficiently impressed those who are concerned with this problem to lead to its adoption

Good authorities insist that the results of the therapeutic use of the serum afford the only reliable evidence of its value, and it may be remarked that almost any manufacturer can produce glowing testimonials as to the clinical results of the use of his product The question that naturally occurs is why some one of these tests is not adopted, and all serums required to comply with it The answer is that in spite of much experimental work we are without sufficient evidence as to the superiority of any method of testing The multiplicity of types of meningococci, and the variations even among members of the same group of organisms, make accurate standardization impossible at the present time

The serums made by American manufacturers represent all the way from ten to forty-six strains of meningococci, and most manufacturers make it a rule to utilize every new strain that comes into their possession unless it is one that is immunologically identical with cultures they are using already

Finally, an additional obstacle to the standardization of the product is the fact that, even when all conditions are favorable, it is difficult for two workers, using the same method, to get comparable results

Antipneumococcus Serum—It is only recently that the value of serum in this disease has been put on a sufficiently substantial foundation to justify its general use Indeed, this serum illustrates the creation of a demand prior to the placing of the product on a sound scientific basis As soon as it became known that there was in experimental use a promising treatment for pneumonia, physicians naturally desired to utilize it in a disease otherwise most unsatisfactory from a therapeutic point of view, and manufacturers sought to meet the demand In the case of pneumonia we have conditions somewhat analogous to those in meningococcus infections, though probably less complex The causative organisms of pneumonia can be divided immunologically into several groups, four, according to Cole and his collaborators

At the present time there is evidence of the therapeutic value of a serum prepared against but one of the types (Group I) While scientific observation has failed to show the value of specific serum against the other groups (II, III, IV), or of Group I serum against these other groups, clinicians working without group determinations and presumably without adequately controlling their work, have reported satisfactory results from the use of the serum in pneumonia in general We may be pardoned if we remain skeptical as to the validity of the observations

Antipneumococcus serum affords a good example of the difficulties in standardization when what we might call the "test object" is a living organism It is impossible to secure a constant minimum lethal dose of culture as a criterion The rate of growth varies, and the virulence varies With these factors so inconstant, and yet absolutely vital, there seems to be no immediate prospect beyond the establishment of a provisional standard

Other Serums—When we come to consider these, we find that there is practically no ground for establishing standards To say that they should show some evidence of potency, without prescribing a minimum, is futile, to prescribe a minimum that would not be reasonably near the maximum obtainable would put a premium on mediocre work on the part of producers, and we have no means of demonstrating the maximum degree of potency

Bacterial Vaccines—It is perhaps not too sweeping to say that at present, as regards the majority of bacterial vaccines, potency standardization is both impracticable and undesirable Aside from antityphoid vaccine, evidence of value is meager, and practically none of the vaccines can be submitted to potency tests on laboratory animals Generally speaking, the doses that have been adopted are purely arbitrary In many cases the dose might be multiplied by ten, or divided by the same factor, without, so far as we know, influencing the effect of the vaccine

The determination of the number of organisms per given volume of fluid is apparently a simple procedure, but, as a matter of fact, two workers equally careful will often get most divergent results, even when the same method is employed, and when different methods are used, the results are little better than guesses based on turbidity would be Obviously this is a minor matter, in view of what has been said above regarding the size of dose

The question of standardization of tuberculins is one that recurs constantly These agents are employed comparatively little in the treatment of tuberculous infections, but they are used rather extensively in diagnosis The varieties are legion It would scarcely serve merely to require that they shall produce a reaction, unless we prescribe the quantity and the dilution Nor do we know whether or not the results of animal experiments are comparable with the results that may be expected when the agent is applied to man

Vaccine Virus—The ultimate criterion of the potency of this agent is the percentage of "takes" it will give, when used to vaccinate persons not previously successfully vaccinated Whether any testing on laboratory animals can be used as a satisfactory substitute for this is uncertain

Even here there must be qualifications, if we are to speak in terms of a standard, thus, how large an abrasion is required to give a successful result, and how much may the vaccine be diluted and still give uniform success? This particular product does not especially concern those of us who are familiar with the subject of standardization, because the demand for vaccine virus comes largely from health officials who are in position to judge from the results of use as to the potency of a given manufacturer's product If the vaccinator gets poor results he is not likely to order a second supply from the same source In other words, a poor product will not be a commercial success It is the judgment of those who have had most experience with the subject that we should not at present insist on a vaccine which is free from contaminating micro-organisms, though the promising work of Noguchi leads us to hope that we may have a dependable pure vaccine in the not far distant future

Antirabic Virus—So long as the preparation of this agent followed, or followed approximately, the original Pasteur method, the products probably varied comparatively little Now, however, there are available dialyzed and desiccated viruses for which certain advantages are claimed, attempts at standardizing these have been made, but there is not sufficient evidence to warrant the adoption of a standard

In connection with vaccine virus and antirabic virus, there is this element of security in regard to potency The propagation of the product requires the inoculation of material from animal to animal, and the failure in one case to develop pocks, and in the other the failure to produce rabies, would indicate at once that the material has become inert, in either case, failure to infect animals used for propagation may be regarded as evidence of the lack of power to protect man

Many products may be tested by purely serologic methods, but the results of such tests may or may not bear any relation to the usefulness of the product Of what value is it to know that a certain serum gives a reaction in a certain dilution by means of complement deviation, agglutination, opsonic index determination, or a bacteriolytic determination, when we do not know that these reactions bear any relation to one another, or, what is more important, to the effect the serum may have on the infection against which it is expected to act?

A possibility that must not be lost sight of is that the establishment of a standard may result in the fixing in the minds of workers and manufacturers the feeling that, as regards the particular product, there is no need for improvement If a thing conforms to a government standard, why try to improve it?

A factor that must be considered in discussing the standardization of biologic products is the rate of deterioration It is not too much to say that we know almost nothing of this, barring the two antitoxins for which we have potency standards This absence of information has led to great variation in "expiration" dating for the same product To remedy this, some manufacturers place the date of manufacture on the label, leaving to the purchaser the determination of the wisdom of using the preparation There is justification for this, on account of the fact that the manner in which products are kept influences deterioration. The serum or vaccine displayed on the pharmacist's shelves or stored in a drawer, loses its efficacy much faster than one kept in an adequate refrigerating device. If the purchaser knows the age of a preparation, he may be in some position to judge of its probable value, when kept under given conditions.

SUMMARY

From the foregoing it is evident that these questions have already claimed much attention, and that the subject of standardization may be thus summarized:

The chief difficulty in standardizing biologic products is due to the unstable nature of the factors.

Legal standards have been established for diphtheria antitoxin and tetanus antitoxin. A provisional standard has been established for antityphoid vaccine.

Vaccine virus and antirabic virus are, in effect, tested for potency in the process of manufacture.

It is not wise to attempt to standardize products in the purely experimental stage, or those for which there is no sound scientific basis.

Those who are engaged in manufacturing and controlling these products are alive to the necessity for standardization.

COMPARISON OF METHODS OF TREATING WOUNDS

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The difficulty of judging and comparing the clinical results of different methods of the treatment of wounds is so great that it seems desirable to consider how more exact information as to the value of a treatment can be attained. It is obvious from a study of the literature since the beginning of the war that the superiority of no one form of treatment has become firmly established. The treatment of infection in wounds is thus still largely in the experimental stage.

The haphazard way of trying first one and then another method on each case, hoping to stumble on a suitable one, is as nearly barren of progress as is treating all wounds in the same way. This proceeding is not likely to lead to the recognition of the best methods of treatment for infected wounds. It is important, therefore, to organize in hospitals a system which may give a clear idea of what is being accomplished by each method of treatment.

As in most other therapeutic problems, the great difficulty in associating cause and effect lies in the number of variable factors which must be controlled. In the case of infected wounds, the first and one of the most important of these factors is the personal element in the manner of applying the treatment and handling the wound. It is of little use to compare two methods of treatment conducted by different men. No two surgeons will carry out the details of the same treatment in exactly the same way. One may secure satisfactory results by a certain method entirely from delicate and careful handling of the regenerating tissues of the wound, while another, using the same method of dressing, may counteract the benefits of the system by careless treatment of the young epithelium and granulations with which he is dealing. Yet both results may be ascribed to the particular method or dressing solution which is being used.

It is also unsatisfactory to compare the results of one method of treatment conducted in a series of cases with a different method used by the same surgeon in a previous series. It will often be stated that better results were obtained with the second method than with the first, when the difference is really due not to a better method, but to the increased experience of wounds that has been gained by the surgeon.

There are other important factors which vary with the patient. First there is that of the *general vitality* and ability to react to the infection. Although this is not so great as might be supposed, owing to the fact that much of the military surgery deals with men more or less carefully selected for their sound health and freedom from debilitating disease, it cannot be entirely discounted.

The *age of the wound* and the previous treatment to which it has been subjected are also factors which must be standardized to be compared. This can partly be accomplished by establishing a system of periodic examinations and descriptions of each case at short intervals, and grouping the cases according to the number of *days since the injury* was received.

One of the most serious difficulties is encountered in the varying conditions within the wounds themselves. No two wounds can be safely considered to be exactly alike, although their external appearance may be very similar. Differences of *location and vascularity* may influence seriously the course of repair. The degree of *trauma*, both the obvious damage and the more subtle microscopic destruction of the soft tissues, is probably the most important of all the factors to standardize and yet the most difficult to estimate. Thus compound fractures are particularly unsatisfactory for study. The presence of *foreign bodies*, especially fragments of clothing and dirt, loose pieces of bone, etc., also alters materially the rate of repair, and, finally, the degree and kind of *infection*, which may vary with each patient, still further complicates the problem.

Although the difficulties of comparison are, as may be seen, great, there are certain methods by which cases can be arranged to reduce the number of the variable factors which confuse the issue and to give a more accurate comparison between them.

There are three ways in which these cases can be profitably studied. The first is by comparison of groups of selected cases. Each surgeon may collect under his service cases which have some points in common — for instance, open fractures, wounds of soft parts only, or cases of approximately the same age as to the injury. These may then be divided into groups, each set being treated in a different way.

Another system lies in a comparison of large groups of unselected cases. This is a logical but cumbersome method. The beds of the service may be divided into two or more groups, each treated by a different method, and patients sent to each group on entry, in rotation. Thus there would be no choice of treatment for a particular case as the result of a preconceived idea of suitability, but the distribution would be purely automatic. Owing to the great variety of patients on each method of treatment, it is necessary to continue the system for a long period of time and in a large number of cases in order to form any satisfactory idea of the characteristics of each form of treatment

The third, and by far the most satisfactory, system of comparison, one which eliminates the largest number of variable factors, is the treatment of two or more wounds in the same individual by different methods This has the great advantage of eliminating variations in individual reaction on the part of the patient, also it is probable that the two or more wounds are of the same age and have been subjected to similar treatment up to the time the patient was received The bacterial infection is apt to be similar They are treated by the same surgeon This leaves uncontrolled only the individual variations of the wounds One case of this sort is worth a comparison of many cases in different individuals, and the special characteristics of the treatments in use can be determined A separate history and description of each wound should be kept, and the progress of repair and the extent of infection recorded at regular intervals

What points should be considered in judging the efficacy of a treatment?

The estimation of the ultimate success of any treatment must be based, of course, on the rate of repair of the injured tissues, that is, the *time required for the cure* As corollaries to the rate of repair, the severity of the systemic reaction to the infection and the *frequency of complications* must be taken into account

It is necessary to have some definite standards of judgment to apply in order to estimate accurately the results The time factor must be standardized Considerable information can be obtained by a systematic, *periodic* examination of the wound, and the observation, at regular intervals, of the rate of growth of the granulations and epithelium, the disappearance of sloughs, and the evidence of bone repair A form of chart devised for the standardization of this information permits of an intimate association of the systemic reaction with the daily course and treatment of the wound

Measurements of the wound surface are difficult to obtain accurately, but should be kept when possible in the case of open wounds The type of scar resulting from the wound must be taken into account This is more or less dependent on the rate of repair—the more rapid the repair, as a rule, the softer the scar During the coarse of treatment, any damage to the tissues resulting from the method of treatment must be noted A painful dressing is usually an indication that new tissues are being injured Burning and blistering of the skin in the region of the wound, or the erosion of new epithelium, may materially retard the whole healing process The evidences of absorption of toxins, as manifested by the fever reaction and the general comfort of the patient, must be considered

The frequency of extension of the infection must be charged against the treatment Pocketing, or the retention of purulent discharge, is usually evidence of unsatisfactory drainage resulting from the improper distribution of tubes or the use of some material which becomes easily plugged by the discharge Local cellulitis may be due to the same cause Erysipelas, pyemia or bacteremia are evidences of unsatisfactory treatment Secondary hemorrhage must also be considered an avoidable complication, and is often due to improper treatment

A further point of considerable importance which must be considered in judging the efficacy of a treatment is the alteration in the bacterial flora of the wounds dependent on it This must be compared with the natural alteration which occurs spontaneously during the course of repair in every wound The unusual disappearance of special bacteria from a suppurating wound under treatment may be evidence of the specificity of the antiseptic dressing solution for those bacteria

The frequency of reinfection of the wound by any one organism (the *Bacillus pyocyaneus* is the commonest example) must also be taken into account in establishing the characteristics of a method of treatment

The discharge should be kept under observation, record should be made of its amount, consistency, odor and color There is a great tendency to place too much importance, however, on a superficial consideration of the discharge The discharge is interesting chiefly as a symptom of an infective process After it reaches the surface of the wound it is of little importance to the patient Certain dressing solutions are claimed to "suppress suppuration" True suppression of suppuration may be a sign of failure to react to the infection, and then gives a bad prognosis to the case There is, however, another process—that seen with the use of hypochlorite solution—on which great importance is sometimes placed as evidence of a decrease in the infection of the wound This is the dissolving and decolorizing of the solid constituents of the discharge as a result of the alkali and chlorin freed from the solution The infection and the reaction of the tissues may remain unaltered, that is, the activity of the bacteria remain the same within the granulations, and the leukocytes continue to emigrate at the same rate from the infected walls, although the character of the pus seen on the dressings may change from a thick purulent discharge to a thin, serous and colorless fluid giving an entirely different appearance to the surface of the wound If the solution is withheld for twenty-four hours the pus cells reappear—a reaction which has been taken as evidence of reinfection This alteration in the discharge, which has nothing to do with suppression of suppuration, may give what is really an optical misinterpretation of the true conditions within the tissues

Exact observations on the particular effects of different methods of treatment are especially important on account of the confusion existing in the management of infected wounds This study has rarely been carried out in a critical, scientific spirit

It is only by comparing methods of treatment and keeping systematic observations of the wounds at regular intervals, and with a proper understanding of the true value of the changes in and about the wound, that the characteristics of any one method of treatment can be established, and an accurate judgment of its efficiency be made Only then can dressings be applied intelligently, with a specific purpose in mind, and, according to definite indications, to particular cases

6, rue Piccini

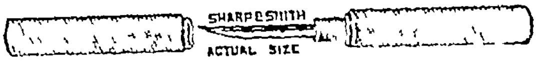
The Age of Insects—The naturalists tell us that this would be the Age of Insects if it were not for man And man's supremacy over the insects is not such a matter of course as is generally believed, to say nothing of their allies, the spirochetes, bacteria, et al To the intervention of the rat flea may be credited the deaths from plague which in two years in India killed more persons than have been killed in the world war to date

Clinical Notes, Suggestions, and New Instruments

A NEW BLOOD LANCET

Irving F Stein MD, Chicago

I have devised a small blood lancet as shown in the illustration It is small, and solidly set in a steel case with a screw-top protecting cover It has proved efficient for drawing an adequate droplet of blood from the ear or finger tip



New blood lancet

It costs twenty-five cents—half the amount of the instrument usually used for this purpose It will easily fit into any hemacytometer case, and is convenient to carry in the vest pocket.

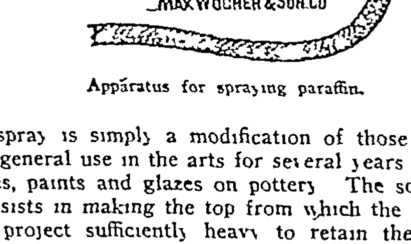
A NEW PARAFFIN SPRAY APPARATUS

John A Caldwell BS MD, Cincinnati
Fellow of the American College of Surgeons Assistant Attending Surgeon Cincinnati General Hospital

The use of the various paraffin wax mixtures in the treatment of burns and other extensive granulating wounds seems to have proved a distinct advance in the treatment of this class of wounds The two methods of applying the wax are by brush and by spray The brush method has been rather unsatisfactory (especially with children) because the preparation must be applied too hot for comfort and the redipping of the brush contaminates the original supply

Many sprays have not given satisfaction because the hot wax is congealed at the outlet by the passage of the cold air jet through the spray nozzle

With the assistance of Mr Max Schmidt of the Max Wocher Company and his workmen, I have made a spray which has given perfect satisfaction during several weeks practical use on the wards of the Cincinnati General Hospital The result has been accomplished without the use of complicated and capricious electrical heating device or hot water jacket. The illustration gives a full idea of the principle of construction



Apparatus for spraying paraffin.

This spray is simply a modification of those which have been in general use in the arts for several years for spraying varnishes, paints and glazes on pottery The sole modification consists in making the top from which the air and wax nozzles project sufficiently heavy to retain the heat The reservoir holds 16 ounces—enough to spray several wounds of large area—and this quantity when thoroughly heated will remain fluid for a long time.

The device filled with the wax is placed in a sterilizer or covered vessel partially filled with water and the water is boiled until the wax is heated to the temperature of boiling water A layer of wax is then sprayed over the thoroughly dried wound A single layer of gauze is then spread over the wax surface and sealed to it by further spraying The gauze facilitates the removal of the wax on the following day

A compressed air reservoir delivering a free flow of air at a pressure of not less than 20 pounds to the square inch is necessary A tank holding 5 gallons and a hand or foot pump will work, but of course a power pump is much more satisfactory

Other advantages of this spray to be noted are that all tubes and nozzles are straight, so that if they become clogged they may be easily freed and also that the siphon type of spray will receive the wax at a temperature of 212 F, and when sprayed at a distance of 2 inches from the wound it reaches the surface sufficiently cool to cause no discomfort In actual use we have been able to spray three patients in succession without reheating the apparatus

My experience so far has not been sufficient to justify reports on the treatment except to state that it constitutes the most convenient method for the physician or the nurse, and the most comfortable for the patient

350 Ludlow Avenue

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLE HAS BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION W A PUCKNER, SECRETARY

ARSENPHENOL-AMINE-S — NH OH C_6H_3 As As C_6 H_3 OH NH (CH O)OSNa —A mixture of sodium 3-diamino-4 dihydroxy-l-arsenobenzene-methanal-sulphoxylate, with inert inorganic salts The arsenic content of 3 parts of arsenphenol-amine-S is approximately equal to that of 2 parts of arsenphenol-amine hydrochloride

Actions Uses Dosage and Physical and Chemical Properties—The same as those of neosalvarsan (see New and Nonofficial Remedies 1917, p 43)

Neodiarsenol.*— A proprietary brand of arsenphenol-amine S

Manufactured by the Synthetic Drug Company *Toronto Canada* (The Diarsenol Company Limited Toronto Canada) Canadian patent No 144 874 U S trademark Nos 90 128 and 90 129

Neodiarsenol 0 15 Gm Ampoules—Each hermetically sealed ampule contains neodiarsenol 0 15 Gm

Neodiarsenol 0 3 Gm Ampoules—Each hermetically sealed ampule contains neodiarsenol 0 3 Gm

Neodiarsenol 0 45 Gm Ampoules—Each hermetically sealed ampule contains neodiarsenol 0 45 Gm

Neodiarsenol 0 6 Gm Ampoules—Each hermetically sealed ampule contains neodiarsenol 0 6 Gm

Neodiarsenol 0 75 Gm Ampoules—Each hermetically sealed ampule contains neodiarsenol 0 75 Gm

Neodiarsenol 0 9 Gm Ampoules—Each hermetically sealed ampule contains neodiarsenol 0 9 Gm

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* Neodiarsenol is accepted for New and Nonofficial Remedies as the available supply of neosalvarsan appears to be insufficient to meet the demand and this preparation conforms to the rules of the Council for acceptance of *proprietary preparations.* Neodiarsenol is made in Canada under a license issued by the Commissioner of Patents of Canada The *Farbwerke Hoechst Company* however announces that the sale of brands of arsenophenol amine S other than that sold as *neosalvarsan* is in its opinion an infringement on its rights and has stated that all violations of these rights will be prosecuted under the law

Brass Band Methods and Typhoid Fever—A cry of "Mad Dog!" will fetch out all who hear, and excite instant measures for the destruction of the dog by the bold, and self-protection by the timid But let men parade the streets with steam-calliopes and exhibit banners appealing for public health funds *sufficient* to exterminate typhoid fever, and not 1 per cent. of that amount will be voted for Yet one has a better chance to avoid a mad dog than typhoid fever—E A. Ayers, MD, *Public Health News*, New Jersey

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . Chicago, Ill

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SATURDAY, AUGUST 4, 1917

THE PANCREAS AND FAT ABSORPTION

Since the early scientific researches of Claude Bernard,[1] it has been known that the pancreas is concerned in some way with the utilization of fats in the body When the fat-digesting properties of the pancreatic juice were duly appreciated, a possible explanation for the phenomenon of suggested interrelationship between the pancreas and fat absorption became available Lack of pancreatic secretion thus might mean failure of fat digestion and consequent utilization This is emphasized by the fact that when the pancreatic juice is experimentally diverted from the alimentary tract, fats used in the diet almost invariably appear in the stools, though the failure of utilization is by no means always complete

Recently it has been suggested that, so far as the utilization of fat is concerned, the mere exclusion of the pancreatic secretion from the intestine is not precisely equivalent to the loss of the entire function of the pancreatic gland as it occurs in extirpation or in various forms of atrophy of the organ Lombroso, for example, declared that a considerable portion of ingested fat might still be absorbed after all direct communication between the pancreas and duodenum was supposedly interrupted, but if complete depancreatization had been effected there was either little or no absorption of fat from the intestine Such evidence was adduced in favor of the hypothesis that the pancreas may be involved in interruption of the natural process of fat metabolism not only by lack of participation of its external secretion — the pancreatic juice — in the intestinal processes, but also by delivering to the blood an "internal secretion" by which fat transformation ordinarily is modified in some way Thus the pancreas was conceived to influence fat utilization in somewhat the same way as it is believed to regulate or modify carbohydrate metabolism [2]

Von Furth[3] pointed out, in commenting on this belief, that properly to interpret this idea one should keep especially in mind that total pancreatic extirpation is a serious interference which results in an inexpressible wasting of the body It might be asked properly whether, when "everything is upset" in metabolism in sequence, it really is a matter of much wonder that the fat digestion should also become disordered He adds that offhand there does not seem to be any insistent reason for ascribing to the internal secretion of the pancreas, besides its dominant part in the metabolism of sugar, a second analogous cardinal function in relation to the metabolism of fats Disturbances of the latter process, after complete pancreatic extirpation, can be fully explained in the first place by the failure of its external secretion, and in the second place by the general disturbance of the economy which severe pancreatic diabetes brings with it

A direct study of the problems involved has been undertaken on animals in the Laboratory of Medicine at the Harvard Medical School by McClure, Vincent and Pratt [4] They also assert that the absorption of fat by the intestinal mucous membrane is always markedly disturbed when the pancreatic secretion is excluded from the intestine They found that dogs with a subcutaneous transplant secreting and discharging pancreatic juice externally absorbed no more fat than dogs in which a pancreatic remnant was undergoing rapid atrophy and sclerosis This shows that the condition of the pancreatic tissue remaining in the body does not influence the amount of fat absorbed by the intestine The new investigations show further that even after complete removal of all pancreatic tissue the absorption of considerable amounts of fat can still take place This need not cause surprise now since it is asserted that the gastric secretory apparatus, as well as the intestinal secretion derived from nonpancreatic sources, produces a fat-digesting enzyme, or lipase Although the pancreatic juice appears to be the predominant, it is not the exclusive source of fat-digesting power in the alimentary canal

PERIODIC VARIATIONS IN THE LIFE PROCESSES IN WOMEN

The regular occurrence of the menstrual period in women is one of the indisputable evidences of a rhythm of functional activities in the human organism Menstruation is presumably associated with comparable periodic changes in the condition of the ovaries, though there is a difference of opinion as to the exact relations between ovulation and menstruation Cycles of performance, alterations of rest and activity, are familiar in the daily routine of all persons, but the extent to which more far reaching though normally regular variations or recurrences of physiologic states of unlike character may be found in nature is not easily answered

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[1] Bernard, Claude Memoire sur le pancréas et sur le rôle du suc pancréatique dans les phenomenes digestifs, particulièrement dans la digestion des matières grasses neutres, Paris, 1856

[2] Compare Gross, O Deutsch Arch f klin Med, 1912, **108**, 106

[3] Von Fürth, O The Problems of Physiological and Pathological Chemistry of Metabolism, Philadelphia, 1916

[4] McClure, C W, Vincent, B, and Pratt, J H The Absorp of Fat in Partially, and in Completely Depancreatized Dogs, Jour Exp Med, 1917, **25**, 381

The theory that the life processes of women have a demonstrable rhythm which centers about the menstrual period was suggested in 1876 by Dr Mary Putnam Jacobi[1] Her observations on the pulse, temperature, blood pressure and muscular strength have been repeated and extended by other workers In general, the conclusions have been that the highest point in all of these processes is reached from two to three days before the onset of the menstrual period, and that they sink to the lowest point at its close, gradually rising to normal during the intermenstrual period

Several years ago Dr Jessie L King[1] of Goucher College, Baltimore, undertook to verify some of these generalizations by methods of physiologic and clinical measurement Her studies of the pulse and temperature of young women tend to support this usually accepted theory of a rhythmic alternation in the life processes The highest point was reached at from three to four days before the menses, the lowest about three days after their cessation Blood pressure records gave such irregular statistics that they could not be adduced in support of the rhythm hypothesis

The variations in pulse and temperature, though apparently unquestionable, are slight at most They alone would scarcely appear to afford any adequate explanation of the feeling of discomfort frequently experienced by certain apparently normal women immediately preceding and at the onset of the menstrual period This has raised the question as to whether there may not be a corresponding variation in the tone of the nerve centers

Dr King[2] has recently reported a series of observations on a group of normal young women over periods varying from one to five menstrual cycles in which the knee jerk was used as an index of such tone The evidence points in the direction of the conclusions that a period of hyperexcitability immediately precedes or accompanies the onset of the menstrual period, that this is followed by a decline in excitability which continues for a few days after the menses have ceased, and that there is then a tendency for it to rise to a slightly higher level than the preceding during the intermenstrual interval

If the mental depression and physical fatigue which are so often associated, rightly or wrongly, with the approach of the menstrual period are based on substantial physiologic variations of the bodily states and performances, it is important to have a detailed analysis of them for social and economic as well as for more immediately scientific reasons It may be well, however, in the absence of more extensive data of a strictly objective value, to bear in mind Dr King's earlier conclusion that there has been a tendency to overemphasize the inefficiency of women during the menstrual period To quote her own words

> Granted that lowering in pulse rate, temperature and blood pressure occur during the menstrual and postmenstrual periods should much significance be attached to a diminution in pulse rate of from two to three beats, to temperature variations rarely greater than 1 degree and to blood pressure changes averaging from 2 to 5 millimeters? Certainly one would suppose that in a healthy individual a normal periodic function should not be accompanied by a marked depression in all of the life processes and a generally lowered efficiency so emphasized by numerous writers If there is a compensation for the loss of blood by the retention of nitrogen, then it would seem that there should be a compensation in the cardiovascular system, and this is indicated in the tendency of the blood pressure to show such slight variations

THE DIASTATIC ACTIVITY OF THE BLOOD IN DIABETES

The increasingly successful application of chemical methods to the clinical examination of the blood has decidedly enhanced the diagnostic and prognostic possibilities of practical medicine Estimations of blood sugar, nonprotein nitrogen and chemical factors, such as the carbon dioxid combining power of the plasma conditioned by acidosis, stand out as conspicuous examples of the service of modern biochemistry in clinical work Numerous additional instances might be cited in which the deserts of new procedures and the merits of new analytic methods applied to the study of the blood must remain in abeyance until more facts and further critique are available In illustration one may recall the content of cholesterol and other lipoids, of amino-acids and other simple nitrogenous compounds in the blood in relation to health or disease

The existence of a variable starch-digesting power on the part of the urine has long been known In recent years, attempts have been made from time to time to associate the variations in the quantity of the urinary amylase with altering physiologic states as expressed in the functional capacity of the kidneys or in the activity of the pancreas from which the enzyme was believed to be derived C E King,[1] who conducted elaborate studies on blood and urinary amylase at the University of Chicago, has remarked that it is not surprising that amylase elimination has not been more generally adopted as a diagnostic measure, if we take into consideration that the physiologic conditions governing the elimination of enzymes, as well as their actual source, are not definitely known As starch-digesting enzyme, or amylase, is secreted by both the salivary and the pancreatic glands, one naturally assumes at the outset that the enzymes from them somehow find their way into the blood and thus into the urine The appearance of the enzyme there is conceivably due to absorption from the alimentary tract or to direct passage from the gland tissue to the blood stream King believes that both paths are followed, but he adds that the digestive glands pouring amylase into the alimentary tract are not the only source of enzyme finding its way into the urine

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[1] Jacobi Mary P The Question of Rest for Women During Menstruation Boylston Prize Essay 1876 This is cited from a paper by Dr Jessie L King (Concerning the *Periodic Cardiovascular and Temperature Variations in Women* Am. Jour Physiol 1914 **34**, 203) from which some of the statements given above are extracted

[2] King Jessie L Possible Periodic Variations in the Extent of the Knee-Jerk in Women Proceedings of the American Physiological Society, Am Jour Physiol 1917, **42**, 607

[1] King C. E. Studies on Blood and Urinary Amylase, Am. Jour Physiol 1914 **35**, 301

There are variations in the amylolytic power of urines from different individuals not accounted for by differences in diet Lesions causing obstruction to the natural outflow of the pancreatic juice lead to an increase of amylase in the urine Traumatic injury to the pancreas results in an increased amylolytic power of the urine Pancreatectomy results in a decrease in urinary amylase The amount of amylase in the urine depends on the amount finding its way into the blood, and on the functional capacity of the kidney King ventures the belief that the amylase in the blood and urine plays no important rôle, but, having found its way into a medium normally containing no substrate, is destined to destruction and elimination

Myers and Killian[2] have avoided some of the uncertainty as to the quantitative significance of circulating amylase by disregarding the kidney factor Their studies at the New York Post-Graduate Medical School and Hospital have been directed primarily to the diastatic properties possessed by the blood Its amylase content is evidently increased in almost all instances of pronounced diabetes and likewise in nephritis It is suggested that the increased diastatic activity in both diabetes and nephritis (as shown by the analyses of the blood) may be the important factor in the production of the hyperglycemia in these conditions The increased diastatic activity of the blood in nephritis finds probable explanation in the decreased excretion of diastase in the urine, now well known in this condition, but it is not possible, at present, to offer a satisfactory explanation of the increased diastatic activity of the blood in diabetes This activity, however, may explain the inability to secure storage of glycogen in the liver of diabetic animals If we accept the conclusions of Myers and Killian, a decrease in the blood diastase may afford a more reliable guide to the efficacy of the dietetic treatment in diabetes than either the blood sugar or urine sugar Furthermore, an increase in blood diastase may constitute a very early sign of impending diabetes These suggestive investigations need extension and corroboration, however, before their real significance can be evaluated

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[2] Myers, V C, and Killian, J A Studies on Animal Diastases, I, The Increased Diastatic Activity of the Blood in Diabetes and Nephritis, Jour Biol Chem, 1917, 29,, 179, Proc Am Physiol Soc, Am Jour Physiol, 1917, 42, 582

The Origin of Concave Spectacles—Within two hundred years from the first statements in the Opus Majus (Roger Bacon) concerning the use of convex glasses for old men, mention becomes more and more common of concave glasses for the myopes, and from 1568 onward convex and concave spectacles have a fixed place as aids to vision—S H Gage

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Current Comment

IS BILE ITSELF A CHOLAGOGUE?

The review of the assertions of Hooper and Whipple of San Francisco that there is no "circulation of the bile" in the sense in which this expression is usually interpreted, and that feeding fresh bile fails to cause any augmentation of the output of bile pigments[1] may tend to raise a question as to whether bile itself is, after all, a true cholagogue In early years an enhancing effect on biliary secretion was ascribed to diverse chemical agents Calomel, rhubarb, jalap, turpentine and olive oil, among many other therapeutic products, received favorable mention With the introduction of more careful methods of observation and an appreciation of the previously underestimated irregularities in biliary secretion under the casual conditions of many earlier experiments, many of the original claims have been abandoned as untenable Schiff's view, that bile absorbed from the alimentary tract increases the secretion of bile and thus acts as a true cholagogue, seems to have been well established Hooper and Whipple[2] have found that even though there may be a fall in the output of the bile pigments, feeding fresh bile to bile fistula dogs causes an almost constant cholagogue action Bile of the dog, sheep and pig all has this effect, and ox bile seems to be the most active cholagogue A separate investigation of some of the individual components of the bile by Hooper[2] showed that glycocholic acid has a moderate cholagogue action, but usually causes a great drop in bile pigment output in a bile fistula dog Taurocholic acid has a strong cholagogue action, but little, if any, inhibiting effect on the bile pigment secretion Bile fat (ether extract of whole bile) has no influence on bile flow, but causes inhibition of bile pigment secretion Cholic acid has little effect on bile flow, but may decrease somewhat the bile pigment output This indication of the potency of the bile acids in promoting biliary output is a substantiation of observations first recorded long ago

WATER ECONOMY AND HEAT REMOVAL IN THE HUMAN ORGANISM

Warmth is one of the products of metabolism As our body temperature is maintained at a remarkably constant level, despite the wide range of variations in the temperature of the environment and the other shifting conditions of climate, an efficient regulatory device is essential Among the factors of the physical regulation of temperature, the loss of heat by vaporization of water from the lungs and skin has long been recognized to play a conspicuous part As the surrounding temperature grows lower, conduction and radiation can serve as paths for the heat dissipation At a low temperature there is little evaporation of water On the other hand, with a rise in the external temperature the other physical processes fail to participate as largely in the removal of heat, so that when a temperature of 37 C (98 6 F) is reached, water evaporation provides for practically the entire loss of heat, unless perchance the temperature of the body rises Pathology is obviously concerned with these mechanisms In fever, for example, special needs for the elimination of heat may be created Long ago it was believed, particularly by von Leyden, that water retention in fever plays an important part in the pathology of the latter condition, although the phenomenon is not regarded as specially characteristic of fever alone at the present time In view of the limited number of facts regarding the water economy of the organism, so far as it relates to heat removal, an unusual value is added to the determination of water elimination in 300 experiments in the Sage respiration calorimeter at Bellevue Hospital, New York.[1] They were carried out for the most part under standard conditions of climatic environment represented by an air temperature of between 22 and 24 C (71 6 and 75 2 F) and a relative humidity of from 25 to 50 per cent, the persons being lightly clad Thirteen normal men were thus found to give off, on the average, 29 gm of water (approximately 1 fluidounce) an hour through the vaporization of water from the skin and the respiratory passages Twenty-four per cent of the heat calories were lost in this way These average results are reported to agree closely with the figures obtained under circumstances more divergent from the normal, as figures obtained from experiments on men after large meals of sugar or protein, on boys of adolescent age, on very old men, on dwarfs, and in a variety of diseases, including diabetes, pernicious anemia and cardionephritic maladies They are accordingly fairly representative of the body's usual performance in this feature of the regulation of temperature These factors, particularly as they show that about one quarter of the heat produced is lost under ordinary conditions of health and climate by the channels indicated, apparently have not been heretofore so extensively and carefully ascertained

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[1] Hooper, C W, and Whipple, G H Bile Pigment Metabolism, IV, Influence of Fresh Bile Feeding upon Whole Bile and Bile Pigment Secretion, Am Jour Physiol, 1917, 42, 264 The Life of the Red Blood Corpuscles and 'Bile Circulation," editorial, The Journal A M A, June 16, 1917, p 1819

[2] Hooper, C W, and Whipple, G H Footnote 1 Hooper, C. W Bile Pigment Metabolism, V, The Influence of Bile Constituents on Bile Pigment Secretion, Taurocholic, Glycocholic and Cholic Acids and Bile Fat, Am Jour Physiol, 1917, 42, 280

NEW YORK EVENING POST STARTS CAMPAIGN AGAINST VENEREAL DISEASES

At this time, when hundreds of thousands of the picked young men of the nation are being called to concentration camps, it is not only advisable but imperative that we realize the dangers to which our soldiers will be exposed unless definite and stringent methods for the suppression of organized vice and the control of venereal infections in military camps are instituted at once and rigidly prosecuted Probably no class of diseases has levied as heavy a toll on military forces in all wars and in all campaigns A soldier incapacitated by venereal infection is not only useless from a military standpoint but he is dangerous to his comrades through the possibility of spreading infection Our nation is making every effort to organize, train, equip and send out the most efficient force in the shortest possible time To do this, we must utilize every available means for the prevention and control of those diseases which may incapacitate thousands of men This is possible only through an aroused public sentiment which will demand the utmost measure of protection for the young men called to military service It is, therefore, particularly gratifying to note that one of the leading New York newspapers — the *Evening Post* — has announced a definite editorial policy, looking to the arousing of public sentiment and the creation of public support for the prevention and control of venereal diseases In its issue for July 14 appears a lengthy special article on the dangers of venereal disease and an announcement that the *Post* has not only abandoned the attitude of the majority of newspapers on this subject, which it designates as a "conspiracy of silence," but that it has laid out a definite program of public education on the prevention of venereal diseases In its issue for July 21, appears a second article based on the report of the Massachusetts State Department of Health, and showing the dangers of syphilis as compared to typhoid smallpox and other diseases Additional articles are to appear each Saturday In taking up this task, the *Evening Post* is performing a valuable service which should meet with the unqualified support of all good citizens and with the support and cooperation of all physicians, and which should go far, by example, in doing away with the attitude of most of our newspapers in ignoring or refusing to discuss one of the most vital public health problems of our day

An Effective Plan of Social Hygiene —The Massachusetts Society for Social Hygiene after five years of work has decided that its most effective efforts are educational It confines its efforts to teaching in quiet ways such parts of sex or social hygiene as may be expected to diminish the amount of sexual transgression and vice, and to check the spread of venereal diseases. As set forth in the *Public Health Bulletin* of the State Department of Health of Massachusetts, April, 1917, the society's methods of work are as follows Two paid agents are employed, both of whom have been practicing physicians, one a man and the other a woman They give all their time to correspondence, to talking to small groups of boys and young men, girls or young women, or fathers or mothers assembled under the auspices of schools, colleges, clubs, associations, settlements, churches, friendly societies, young men's or young women's Christian associations, women's clubs, men's clubs, and to advising the numerous inquirers who come to the office of the society The sexes are talked to separately, for the most part Four physicians give their services gratuitously in lectures to groups of men or occasionally to mixed groups The field for this work is said to be wider than the society is able to cultivate A lending library of carefully selected books on social hygiene and related subjects is maintained, which is much used at the office and by groups to whom lectures have been given A reading list prepared by the society is distributed in thousands of copies, some of which are given out by the public health nurses The officers of the society are Prof Charles W Eliot, president, David L. Edsall, M D, vice president, Ernest B Dane, treasurer, Irving E. Stowe, M D, secretary The office and library of the society are at 50 Beacon Street, Boston

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[1] Du Bois E. F and Soderstrom G F The Vaporization of Water from Skin and Respiratory Passages in Health and Disease Proceedings of the American Physiological Society Am Jour Physiol, 1917 42, 604

Medical Mobilization and the War

TEXTBOOKS DEALING WITH THE ADVANCE OF MEDICINE AND SURGERY DURING THE WAR

EDWARD MARTIN, M D
Chairman, Editorial Committee, General Medical Board
WASHINGTON, D C

The intensive training to which some thousands of the civilian doctors who have entered the Army are now being subjected excites, in the minds of those who know how thoroughly this has been organized and is being administered, nothing but unqualified admiration It must be assumed, and usually with justice, that these men have all received an adequate medical education, that they are qualified to meet the calls incident to civilian professional life It is equally clear that, with the exception of a very few who have had experience at the front, they are entirely ignorant of the new problems introduced as a result of the present methods of warfare and the terrain on which it is conducted, and that the medical and surgical knowledge gained by the three years of experience on the western and eastern fronts has come to them only in fragmentary, disconnected and often confusing ways through current literature or by word of mouth on the part of those who have had a limited chance for observation, from which it follows that in the final education of these Army surgeons, it is of vital importance that the results of the experience gained, often at frightful cost, should be systematized, formulated, condensed and digested in the shape of a text which shall serve as the basis of their technical education

This text should cover hygiene, it should present a broad general view of military surgery as practiced at the present time, it should cover infections and the treatment of wounds, fractures and the lesions of joints, the methods of first-aid dressing, the treatment to be applied at the advance dressing station, where only the immediate needs of the hour can be met, the treatment to be applied at the field hospital, where the first complete and surgical treatment is practicable

The problems of the base are not of such urgent need from the immediate educational standpoint, since they will, in the main, be taken up by technicians already trained

The profession will be glad to know that arrangements are being made for a collection and proper presentation of the best and most recent thought and practice bearing on medical and surgical military problems

The Editorial Committee of the General Medical Board of the Council of National Defense, in cooperation with the Surgeon-General's office, which has the largest representation on this committee, has, with the authorization of the Secretary of War, arranged for a series of hand-books of such size as can readily be carried in the pocket, corresponding closely with the Manual of Drill Regulations, each intended to cover a fundamental subject from the standpoint of the immediate needs of the military surgeon

If the preliminary summarization and digestion of current literature prove satisfactory, the collator may be sent over for a final study at the front and for consultation with those of largest experience and who have been most successful During this period the manuscript will be put in shape for publication, will be returned and finally passed on by the Surgeon-General's office, and, if approved, will be issued as a manual which will serve as a text in the education of the military surgeon

The committee has already approved "Military Hygiene," by Major Vedder, "War Surgery," by Dr Stimpson, and "Medico Military Service," by Colonel Goodwin, and has in course of preparation "Infections," "Wounds of the Head and Trunk," and "Wounds of the Extremities"

The new Army surgeons should be sent to the front with an accepted standard antiseptic or antiseptics, with an accepted standard technic, in which, before their going, they may be thoroughly drilled

In addition to the textbooks, and supplementing them, Major Munson has arranged for a series of illustrated lectures by men prominent in the profession, and for practical demonstrations of splints, traction and other mechanical measures so constantly called for in modern war

It is the hope that our surgeons, thus educated to the hour, may not suffer by comparison with our English and French brethren, who possess the priceless advantage of a larger experience

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The Medical Officer and His Rank

The lowest rank held by a medical officer is that of first *lieutenant* As such he is entitled to salute by second lieutenants, sergeants and corporals, as well as by privates of the line If there is anything that "gravels" even a second lieutenant it is this demand of the service At one of the training camps for officers of the line and for medical reserve officers, the latter have become accustomed to the somewhat satirical salutes and gibes of the embryo line officers The "medics" retaliate by good-natured advice to the "boy-scouts" One of the students in the line training camp said "The hardest thing we have to do is to salute those fellows (the medical officers) They can't march, they salute funny and they are not soldiers anyway you look at it" The attitude of these men who may some day be in a position to reject a suggestion of immense sanitary importance from the men who now amuse them is significant Perhaps the cure for the problem lies in teaching the line officer the deeds of the medical department in the past, in impressing on him the lessons of the Mesopotamia tragedy, in convincing him that the greatest sacrifice on the altar of duty to one's country is made by the medical officer

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The Care of Soldiers' Dependents

The Children's Bureau has issued a report on the care of dependents of enlisted men in Canada, which is particularly timely, as this problem will soon become one of immediate importance in this country The principle that some provision by the government or otherwise should be made for the dependents of those who are called on to serve their country is generally recognized, but, as is pointed out in Miss Lathorp's letter of transmittal, this tendency has developed entirely since the Civil War and is a part of the growing recognition of the responsibility of the state The plans adopted by belligerent nations in Europe are interesting but hardly applicable to this country on account of different standards of living In Canada, however, the situation is more nearly comparable to our own The assistance extended by the Canadian government comes under two general classes, namely, pensions payable while in service and pensions payable after discharge The dependents of an enlisted man may receive assistance from four sources These are

1 Assigned pay Enlisted men are required to assign at least one half of their pay (not including field allowance) at the time of their enlistment, and are permitted to assign not more than twenty days' pay Officers are not required to assign any definite amount

2 Separation allowance granted by the Canadian government to dependents of volunteers This varies from $20 a month for privates to $60 a month for lieutenant-colonels No allowance is made for children in this arrangement.

3 Life insurance In certain localities in Canada, families of enlisted men are protected by life insurance, the premiums on which are paid by the municipalities in which the volunteers resided at the time of their enlistment The policies in most cases have been issued by insurance companies located in the United States In Toronto, however, three fourths of the insurance is being carried by the city of Toronto itself, a $2,000,000 bond issue having been floated for this purpose Every officer and enlisted man residing in Toronto at the time of entering the service has, from the date of his enlistment, a life insurance policy for $1,000

4 The Canadian Patriotic Fund, incorporated This fund organized in 1914, renders assistance to families in need whose income from all sources is insufficient for their need The resources of the fund are derived from volunteer contributions and from grants made by the Provinces as well as cities and counties

Applying these various means of relief to a specific case, the wife of a private having three children between the ages of 10 and 15 would receive the following sums monthly assigned pay of a private, $15, separation allowance, $20, Canadian Patriotic Fund $25, total, $60 From Sept 1 1914, to April 20, 1917 nearly $17 000 000 was dispensed to soldiers' dependents, while over $6 000 000 was on hand for further distribution Benefits payable after discharge include pensions in case of disabled men and payments during reeducation and preparation for self-support Pensions range from $480 a year for enlisted men to $2,700 a year for brigadier-generals there being six classes of disability ranging from 20 to 100 per cent In case the soldier is killed or dies as the result of injuries received or disease contracted in active service the widow is entitled to a pension and an allowance for children This amounts to nearly as much as the pension for total disabilities, the allowance for the widows of all men below the rank of petty officers being $432 a year with $66 additional for each child that of the widow of a commodore or brigadier-general being $2,430 a year with an allowance of $108 for each child

Much is being done to fit disabled and incapacitated soldiers for self-support. A military hospital commission has been organized which sees to it that the disabled soldiers go to the hospital home or sanatorium which will give them the most efficient treatment and restore them to the most complete condition of health possible. While under the supervision of the hospital commission the soldier receives his regular pay and his family receives all allowances, he being regarded as still in active service On being discharged from the hospital and the service he is passed on to the board of pension commissioners and the first pension instalment is paid him on the day that he is discharged In each district a vocational officer keeps track of the discharged man If it is found necessary to teach him a new trade a course of instruction is outlined for him While taking this course he receives a pension an allowance of $8 a month by the commission, his maintenance at one of its institutions or an allowance of a dollar a day if he lives at home, with a further allowance to his wife of the difference between the $35 a month and the pension paid to her husband Allowances are also made for children at different ages the whole forming a maximum of $55 a month for the wife and children and which with the $1 a day maintenance allowance and the $8 from the commission gives the family a total monthly income of $93 The pamphlet issued by the Children's Bureau also contains in the appendix pay and allowance tables reports of the board of control of Toronto on insurance, the act incorporating the Canadian Patriotic Fund and numerous other laws ordinances, tables and blanks of use in studying this subject.

Physicians Recommended for Commission in the Medical Reserve Corps

During the week ending July 21 1917, 472 physicians were recommended for commission in the Medical Reserve Corps, the proportion being 6 majors, 57 captains and 409 lieutenants

Special Service for Psychiatry and Neurology

Major Pearce Bailey M R. C. chairman of the Committee on Furnishing Hospital Units for Nervous and Mental Disorders to the United States Government, has been asked by the Surgeon-General to serve as personal advisor to the Surgeon-General in all matters pertaining to psychiatry and neurology

Plattsburgh Soldiers Forbidden Vermont

On July 19, Colonel Wolf issued orders forbidding any members of the Plattsburgh garrison and training camp to visit the state of Vermont without written permission of the commanding officer because of the presence of infantile paralysis in that state As yet no cases of this disease have been reported on the New York side of Lake Champlain

Promotions in Naval Medical Corps

The Surgeon-General has recommended the promotions of three medical inspectors to medical directors, seventeen surgeons to medical inspectors and thirty-three P A. surgeons to surgeons The promotions are calculated on a basis of 489 as total strength of the corps On July 1, the authorized strength of the corps was 824, and on this basis promotions would be ordered to bring the several grades to the following strengths four medical directors with the rank of rear admiral, thirty-two medical directors with the rank of captain and sixty-six medical inspectors

Commissions for Contract Surgeons

A bill was introduced in the House, July 3, by Mr Hulbert, providing that acting assistant or contract surgeons, who have served under standard contracts at Army posts under Army contracts and who were not commissioned in the Medical Reserve Corps at the time of the passage of the Act of April 23, 1908, be commissioned as first lieutenants, Medical Reserve Corps date of entry into service to be contingent on the authorization of the Surgeon-General for recommendation for active service in the Medical Corps, in case of necessity any physician who has served as commissioned medical officer in volunteer service in the naval guard or militia or as acting assistant or contract surgeon for at least three months providing that they are mentally and physically qualified to perform the duties required

New Divisions in Public Health Service

House Bill No 5347, introduced by Representative Adamson, July 9, provides

> That there shall be established one additional division each of mental hygiene and rural sanitation in the United States Public Health Service and said divisions shall be in charge of commissioned medical officers of the United States Public Health Service, detailed by the Surgeon General which officers, while thus serving shall be assistant surgeons general within the meaning of section three of the act approved July 1 1902, entitled An act to increase the efficiency and change the name of the United States Marine Hospital Service' Sec. 2 That the duties of the division of mental hygiene shall be to study and investigate mental disorders and their causes care and prevention The duty of the division of rural sanitation shall be to investigate improved methods of rural sanitation, and the prevention and suppression of comunicable diseases.

Netherlands Physicians Inspectors of Prisoner Camps in Germany

The *Nederlandsch Tijdschrift* states that until America declared war on Germany, some American physicians in Germany had been entrusted with the supervision of prison camps in Germany where English prisoners were confined The inspection dealt with the hygienic conditions, the food and the medical treatment in the camps After the United States withdrew from the neutral nations, the English government appealed to the Netherlands government to appoint two Netherlands physicians for the task After some search two physicians residing at 's-Gravenhage accepted the appointment and went to Berlin last March One, however, Dr E A Keuchenius, was deemed not neutral enough, and was obliged to return home. Dr R. Romer, of the same town formerly in the East Indies, was appointed in his place The other member of the party is Dr J A Rademaker

Longevity Pay for Contract Surgeons

The Court of Claims has rendered a decision in the case of Lieut Herbert W Yeamans, M R C, U S Army, who, while serving as a contract surgeon, was appointed a member of the Medical Reserve Corps and claimed that he was entitled to longevity increase for his services as contract surgeon, basing his claim on Section 9 of the act of April 3, 1908 which provides 'That officers of the Medical Reserve Corps, when called on active duty in the service of the United States as provided in Section 8 of the act, shall be subject to the laws regulations, and orders for the government of the regular Army, and during the period of such service shall be entitled to the pay and allowances of first lieutenants of the Medical Corps with increase for length of service now allowed by law, said increase to be computed only for time of active duty" The Court of Claims holds that this legislation was prospective in its character and operation, and does not contemplate the computation of former service in fixing the longevity pay of officers rendering service in the Medical Reserve Corps, that the plain meaning of the language quoted is that officers of the Medical Reserve Corps shall only receive longevity pay while they are on active duty in the active service of the United States in the Medical Reserve Corps and that no service performed elsewhere, even though performed in other branches of the military service, can be computed in determining the longevity pay provided for in this statute.

Orders to Officers of the Medical Reserve Corps

ALABAMA

To Allentown, Pa, for duty, Lieut. L A Fox, Birmingham

To Army Medical School, Washington, D C, for instruction, Lieut William L Staggers, Birmingham

To Fort Sam Houston, Lieut B F Adams, Fulton

To report in person to commanding general, Southern Dept, for duty, Lieut D P Dixon, Talladega

To home from further active duty, Capt John O Rush, Mobile

The resignation of Lieut E S Sledge, Alabama N G, Mobile, is accepted

ARIZONA

To report by telegraph to the commanding general, Southern Department, for assignment to duty, Capt J E Bacon, *Miami*

ARKANSAS

To Fort Oglethorpe, Lieut L Thompson, Hot Springs

CALIFORNIA

To Fort Benjamin Harrison for instruction, Lieut Louis Felger, Los Angeles

To Chicago, Major George F Shiels, San Francisco, and Lieut. G M Hubbell, Los Gatos

To Fort Sam Houston, Lieut J H Graves, San Francisco

To Rockefeller Institute, New York, N Y, Lieut. J R Oliver, San Francisco

To San Francasco for duty, Major B F Hayden, Soldiers Home, Capts E A Newton, Los Angeles, H R Green, Palo Alto, R K Hutchings, E S Kilgore, San Francisco, F R Fairchild, Woodland, Lieuts H E Foster, Berkeley, E R Bridge, La Vina, R L Rierson, Oakland, C F Gelston, E W O'Donnell, and J B Spalding, San Francisco

To Washington, D C, for duty, Major W F Snow, Stanford University

To Hawaii, for duty, Lieut A L Davis, San Francisco

CANADA

To Army Medical School, Washington, D C, for instruction, Lieut Donald Munro, Ontario

To Fort Benjamin Harrison for instruction, Lieut E A Smith, Hornings Mill, Ontario

COLORADO

To Fort Douglas, Lieut. A L Beaghler, Denver

To Hawaii for duty, Lieut R L Drinkwater, Denver

To report by telegraph to the commanding general, Southern Dept, *for assignment to duty*, Lieut R DeL Wilson, Holly

CONNECTICUT

To Fort Oglethorpe for instruction, Lieut. John L. Kelly, New Britain

DISTRICT OF COLUMBIA

To Army Medical School, Washington, D C, for instruction, Lieut Carroll E Bingman, Washington

FLORIDA

To Atlanta, Ga, Lieut C A Andrews, Tampa

To Fort Oglethorpe for duty, Lieut H B Cordes, Jr, and W G McKay Jacksonville

To Washington D C, for duty, Lieuts Hyman M Ginsberg, Pensacola, and John K Johnston, Tallahassee

GEORGIA

To Army Medical *School, Washington*, D C, for *instruction*, Lieuts Robert S Wynn, Atlanta, and John A White, Augusta, Roy A Gunter, Jackson, and William G Herrington, Nunez.

To Atlanta, Ga, *Lieuts* W P Ellis, Gay, and O E Herndon, Powelton

To Columbia, S C, Lieuts C E Lawrence, Atlanta, and D P Belcher, Sale City

To Fort McPherson for duty, Capt Richard R Daly, Atlanta

To Fort Oglethorpe Capt Young A Little, Milledgeville, Lieuts Adrian D Williams, Folkston, and Egbert M Townsend, Tilton

IDAHO

To Allentown, Pa, for duty, Lieut F L Cole, Rigby

ILLINOIS

To Army Medical School, Washington, D C, for instruction, Capt. Charles H McKenna, Chicago, Lieuts Julian N Dow, Arcola, Asa R Freeman, Blomington, Irving F Barnett, Bernard P Conway, Harry A Dimond, Kendall P Frost, Orlando M Gochnaur, *David* A Horner, Vincent F Keller, Chicago, Elvin O Brown, Clayton, Lawrence A Ryan, East St Louis, Percy P Haslitt, Marshall, and William L Smith, Toledo

To Fort Benjamin Harrison, Lieuts J C Hall, Centralia, Guy E Krolick, Arthur W Wermuth, Chicago, and *Charles* F Childs, New Boston

To Fort Riley for duty, Lieut. T B Knox, Quincy

To Hawaii for duty, Lieut C S Brewer, Fairburg

To Rockford, Ill, Lieuts G R Allaben and H Harvey, Rockford

Par 51, S O 145, June 25, 1917, War D, relating to Lieut Imas P Rice, Oak Park, is revoked

To report in person to commanding general, Southern Department, Lieut E S Adams, Chicago

INDIANA

To Fort Benjamin Harrison for duty, Lieuts George H Hockett, Anderson, and C M Williams, Kokomo

To Fort Oglethorpe, Ga, Lieut W C Moore, *Anderson*

IOWA

To Hawaii for duty, Capts F G Murray, Cedar Rapids, and A V Hennessy, Council Bluffs

To Des Moines, Iowa, Capt J J Daly, Decorah, A C Hansen, Chester, and C E Ruth, Des Moines

KANSAS

To Fort Douglas, Lieut W R Dillingham, Sabetha.

To Fort Riley, Capt W A Carr, Junction City, Lieuts. M L. Belot, Clyde, and L T *Simpson, Moran*

To Rockford, Ill, Lieut C W Hall, Cedar

To report in person to commanding general, Southern Department, for duty, Lieut. J C Butler, *Stafford*

KENTUCKY

To Fort Benjamin Harrison for duty, Capt J L Phythian, Newport.

To Fort Oglethorpe for instruction, Lieuts Edward Stumbo, Allen, and Lawrence F Boland, Stone

To Louisville, Ky, Capt Irvin Lindenberger, Fort Thomas, Lieuts J F Cook and L J Ernstberger, Louisville

To report in person to commanding general, Southern Department, for duty, Capt W B Gossett, Louisville

LOUISIANA

To Army Medical School, Washington, D C, for instruction, Lieuts, Marvin Cappel, Alexandria, James A Coleman, Jena, Addley H Gladden, Jr, William G Milholland, New Orleans, Eric L. Major, Oscar, Claude A Martin, Welsh, and L B Faulk, Monroe

To Fort McPherson, Capt J T Halsey, New Orleans

To Fort Oglethorpe for instruction, Lieut J McKowen, Baton Rouge

To Fort Sam Houston, Lieut O B Kiel, New Orleans

MARYLAND

To Annapolis Junction, Lieuts M T Burrows, Baltimore, and W E McClanahan, Highlandtown

To Army Medical School, Washington, D C, for instruction, Lieuts Edward H Benson, Charles E Sima, Baltimore, and Amos F Hutchins, Brooklyn

To report to John D Ryan, director general of military relief, Washington, for duty as his assistant, Major W H Smith, Baltimore.

To Baltimore, Lieut. J F Lutz, Baltimore

To Fort Benjamin Harrison for duty, Lieut. Pinkney L. Davis, Baltimore.

To Fort Oglethorpe, Lieut G M Boyer, Damascus

To Philadelphia, Capt D MacCalman, Baltimore

To Washington, D C, Lieut E S DuBray, Baltimore.

So much of Par 33, S O 157, July 9, 1917, War D, as relates to Capt Clement A Penrose, Baltimore, is revoked

MASSACHUSETTS

To Army Medical School, Washington, D C, *for instruction, Lieut* Harry Olin, Boston, and Louis H Limauro, Lynn

To Atlanta for duty, Lieut Homer L Conner, Haverhill

To Ayer, Mass, Capt A H Crosbie, Boston, and Lieut A G Bolduc, *Attleboro*

To Fort Benjamin Harrison for duty, Lieuts John M Birnie and Patrick M Moriarty, Springfield

To Fort Greble, R I, Lieut J H Kearney, Fitchburg

To Fort Sam Houston for duty, Lieuts D J MacPherson, Boston, and G L Schadt, Springfield

So much of Par 51, S O 121, May 25, 1917, War D, as relates to Lieut H E Carney, Boston, is revoked

MICHIGAN

To Battle Creek, Mich, Capt T B Henry, Northvell, Lieuts. S S *Danziger, H B Schmidt, Detroit.*

To Fort Benjamin Harrison, Lieut G C Hafford, Albion.

MISSISSIPPI

To Army Medical School, Washington, D C, for instruction, Lieuts. William W Allred, Kiln, and Fred L Ricks, Starksville

To Canal Zone for duty, Lieut. M C Henry, Bentonia

To Fort Oglethorpe Lieuts L F Barnier, Greenwood, H T Cuming, Gloster, and R P Hentz, Ittabena

To report in person to commanding general, Southern Department, for duty, Capt W E Richards, Columbus.

MISSOURI

To Army Medical School, Washington, D C, for instruction, Capt. Arthur H Sewing, St Louis, Lieuts Louis M Edens, Cabool, Guy F Robinson, Koch, and Alvin H Maeys, St. *Louis*

To Chicago, Lieut W L Moore, St Louis

To Ayer, Mass, Lieut F L Bishop, St Louis

To Fort Oglethorpe for duty, Lieut O F McKittrick, St Louis

To Fort Riley, Major M P Ravenel, Columbia, and Capt W L McBride, Kansas City

To Hawaii for duty, Capts R K Ogilvie, East Prairie, F D Dickson, Kansas City, R S Bryan, St Louis, and Lieut. C P Mueller, Kansas City

To Washington, D C, Capt V P Blair, St Louis

MONTANA

To Fort Riley for instruction, Lieut F W Loring, Whitehall

NEBRASKA

To Fort Douglas, Capt J A Henske, *Omaha*, B L. Shellborn, Peru

To Hawaii for duty, Lieut C E Pinckney, Gretna

NEW JERSEY

To Allentown, Pa, Lieut *H* Rogers, Orange

To Army Medical School, Washington, D C, for instruction, Lieuts Normann S Garrison, Rutherford, and David W Green, Salem

To Fort Oglethorpe, Lieuts Morris R Faulkner, Vineland, to post hospital for duty, A A Strasser, Arlington, and W L. Vroom Ridgewood

To Fort Ontario, N Y, for duty, Capt F W Cornwall, Plainfield

To Wrightstown, N J, Lieuts *J C Butler*, Hammonton, E K Fe, Lawrenceville, and J B Griswold, Morristown

NEW MEXICO

To Fort Bliss to examine troops on duty for tuberculosis, Capts David C. Twichell Albuquerque Earl S Bullock, Silver City, and Lieut. Ernest A Duncan Silver City

To report by telegraph to the commanding general, Southern Department for assignment to duty Major H A Ingalls Roswell

NEW YORK

To Allentown, Pa Lieuts Joseph S Baldwin Brooklyn Harvey R Gaylord Buffalo Darwin O Lyon, Mount Vernon, Mark I Healy, T E. Lavelle and C. E S Webster New York

To Annapolis Junction Md Capt E. E. Tull, New York

To Army Medical School, Washington D C, for instruction Capt John A Battin, Westport Lieuts Carl E. Dunaway, Henry J Meister, New York Alson J Hull Troy and Page E Thornhill Watertown

To Atlanta for duty, Capt Howard L. Van Winkle, Albany, and Lieut Stephen H Curtis Troy

To Canal Zone for duty Lieut I Michlin New York

To Cornell Medical College, New York Capt U S Kann Binghamton Lieuts W G Herrman, Brooklyn J C Howard New York and D S Childs Syracuse

To Fort Benjamin Harrison, Major F W Loughran Capt A S Vosburg Lieuts Harry T Morton and H E B Pardee New York and F H Spencer Waverly

To Fort Oglethorpe for instruction, Lieut Charles N B Camac, New York

To Fort Ontario N Y for duty in connection with Unit N Lieut. J I Cunningham New York

To Fort Snelling Minn Capt. W M Richards New York

To Governors Island N Y Lieut Arthur G Quinn Staten Island

To Madison Barracks N Y for duty Major Henry L. K. Shaw Albany

To New York Capts A M Kane, Brooklyn and E. W Caldwell, New York.

To Rockefeller Institute New York Capt Ethan F Butler Yonkers Lieut M McBurney, and T F N Sullivan New York

To Washington for duty Capt. Sidney R Burnap New York.

To Yaphank Long Island N Y Capt A I Boyer New York Lieuts. R E. Brodie Albion and B B Benson New York.

To report in person to commanding general, Southern Department, for duty Lieut. F L. Horton Brooklyn

To home Lieut. B H Eliasberg New York.

NORTH CAROLINA

To Baltimore Lieut. H H Ogburn Greensboro

To Columbia S C Lieut. G S Coleman Kenly

To Fort Oglethorpe Lieuts L. N West, Raleigh to post hospital for duty F J Pate Greensboro

To report to commanding general Southern Department, for duty, Lieuts. G W Pressly, Charlotte and J L. Moore Wendell

NORTH DAKOTA

To Hawaii for duty Capt A J McCannel, Minot, and Lieut. F O Brigham Stanley

OHIO

To Army Medical School, Washington D C for instruction Lieuts Luman G Moore Kinsman John F Stober Lexington John J South Massillon and Karl D Figley Toledo

To Chillicothe Ohio Lieuts. C C Crosby, R B Wynkoop, Ashtabula and B F Cureton Walhonding

To Fort Benjamin Harrison for duty Major Colin R Clark Youngstown Lieuts Charles D Treister Robert W Williams, Cleveland and John C Larkin Hillsboro

To Fort Leavenworth for duty Lieut. H R Wahl Cleveland

To Fort Oglethorpe post hospital for duty Lieut. H de G Sherman Cleveland

To Walter Reed Hospital Takoma Park D C, Capt David M Roberts New Richmond.

OKLAHOMA

To Fort Riley for duty Lieut J G Janney Lawton

To Fort Sam Houston Lieut H C Johnson Antlers

To report by telegraph to the commanding general Southern Department for assignment to duty Lieut. H S Browne Tulsa

OREGON

To Army Medical School Washington D C., for instruction Lieut. John E Kuykendall Eugene

PENNSYLVANIA

To Army Medical School, Washington D C for instruction Lieuts Thomas L. Smyth Allentown William B Evans Chester L M Sankey, Jeannette Samuel LeR. Ridge Longhorne Isaac I Parsons Media Chester A. Bardsley James B Clinton Toby A. Greco Samuel B Greenway John V Kearney Howard F Keating Baldwin L Keyes Thomas Klein Richard J Miller George K. Tweddel William F Whelan Philadelphia A. R Howard Herbert M Long Charles H Marcy Harry L. Murphy Ward I. Pierce Frank C Rote Pittsburgh Clyde E Tibbens Scranton Albert Shannon Titusville Benjamin P Doran and Robert H Jeffrey Uniontown

To Fort Benjamin Harrison Lieuts. Joseph Turner W S Shimer and E. E Johnson Philadelphia

To Fort Oglethorpe, Major A. C Abbott Philadelphia Capt M J Shields Scranton Lieuts R. A. Keilty Lansdowne F W Knippel Mercer and William P C Clancy Warren

To Fort Sam Houston for duty, Lieut C H Bailey Jamestown

To New York M W Meyers Allentown

To Philadelphia, Lieut. J E. Livingood Womelsdorf as instructor in military roentgenology Major Willis F Manges.

To Rockefeller Institute, New York for duty Lieut. Alan C Woods Philadelphia

To Washington D C. Lieut. M S Bowers Braddock.

PHILIPPINE ISLANDS

To Allentown, Pa, Capt C C Hillman, Manila

SOUTH CAROLINA

To Canal Zone for duty, Lieuts T J Peale, Clinton, and E E. Epting Williamstown

To Fort Oglethorpe for instruction, Lieuts Ralph H McFadden, Chester and George F Klugh, Crosshill

SOUTH DAKOTA

To Fort Oglethorpe for instruction, Capt David J Carson, Faulkton

To St Louis, Lieut A J Black, Oldham

TENNESSEE

To Fort Benjamin Harrison for duty, Lieut M E. Bry, Memphis

To Fort Oglethorpe for instruction, Capt William A Carnes and Lieut Marcus C Spingarn, Memphis

To Fort Sam Houston, Lieut C McK Beck

To Little Rock Ark, Lieuts J C Eldridge, Chattanooga, R R Sellers Erwin and W H Baldwin, Memphis.

To Washington for duty, Lieut Louis W Desprez Memphis

To report in person to commanding general, Southern Department for duty, Lieuts W M Blackshore, Lucy, and S S Moody, Shelbyville

TEXAS

To Allentown, Pa, Capt H J Hallett, San Antonio

To Army Medical School Washington, D C, for instruction, Lieut. Giles W Day Fort Worth

To Fort Adams R I Major William H Lloyd El Paso

To Fort Bliss to examine troops for tuberculosis, Lieut. Paul Gallagher El Paso

To Fort Sam Houston Capt T H Harrell, Gonzales Lieuts R M Prather Beeville and J W Conley, Saron

To report by telegraph to the commanding general, Southern Department for assignment to duty Capts I McNeil, El Paso W H Hargis San Antonio Lieuts D M Vogt Fort Bliss T O Wooley Germantown C C Cody Jr E L. Goar, Houston C C Cade, San Antonio, and G P Acton Sherman

UTAH

To Fort Douglas Lieut J J Galligan, Salt Lake City

VIRGINIA

To Cornell Medical College New York, Lieut G O Crank, Madison Heights

To Fort Benjamin Harrison for instruction, Lieut Henry C Bradford Norfolk

To Fort Oglethorpe, Lieuts H C. Mallory, Greenbackville, and Frank Levinson Hopewell

To Fort Sam Houston, Lieut B L Crawford Richmond

To Petersburg Va. Capt. H T Nelson Charlottesville Lieuts W F Merchant Manassas and H R Seelinger Norfolk

To Richmond Va., Lieuts F M Hodges, C L. Rudosill, Richmond

WASHINGTON

To American Lake, Wash, Lieuts W F Cunningham, Seattle M R Charlton and R. N Hamblen Spokane.

WEST VIRGINIA

To Fort Oglethorpe Capt. E. Davis, Salem, and Lieut. E H Bitner, Martinsburg

WISCONSIN

To Fort Benjamin Harrison Lieuts C H Andrew Platteville, and Benjamin B Rowley Whitefish Bay

To Fort Leavenworth Kan, Lieut F B Taylor Madison

Orders to Officers of Medical Corps

Major Louis T Hess M C, to Washington for examination for promotion

Lieut. Col D F Duval M C., from Canal Zone to Fort Riley for duty

Major H H Johnson M C, to Fort Washington for duty

Capt. R C Bull, M C, having been found physically disqualified for the duties of a major by reason of disability incident to the Service his retirement with the rank of major is announced from May 15 1917 the date on which he would have been promoted to that grade had he been found qualified

Capt. N T Kirk M C to Fort Oglethorpe for temporary duty

Capt E R Gentry M C, to Fort Leavenworth

Capt Edgar D Craft, M C, having been found physically disqualified for duties of major by reason of disability incident to service his retirement with the rank of major is announced from May 15, 1917 the date on which he would have been promoted by reason of seniority had he been found qualified

Major William A Powell, M C, now at training camp Fort Benjamin Harrison Ind, will report to C O of that camp for duty

Major Clarence H Connor M C will report in person to Col William H Arthur M C president of the examination board at Washington D C. for examination to determine his fitness for promotion

Major Harold W Jones M C in addition to his other duties is detailed as professor of medical department administration at the Army Medical School Washington vice Col James D Glennan, relieved

Major Henry F Pipes M C, is relieved from further station at Fort Slocum N Y and is assigned to duty at Jefferson Barracks Mo

Lieut. Col Jere B Clayton, M C is relieved from his present duties and will proceed to Fort Sam Houston Tex. and report in person to the commanding general Southern Department for assignment to duty as sanitary inspector of that department.

Lieut. Col Henry A Shaw, M C. will repair to Washington, D C. and report in person to the Surgeon General of the Army for the purpose of making such special sanitary inspections as may be deemed necessary from time to time

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest, such as relate to society activities, new hospitals, education, public health, etc)

CONNECTICUT

Personal—Dr Marvin Z Westervelt, Litchfield, has associated himself with the surgical department of the Winchester Arms Company, New Haven——Dr Ralph B Cox, Collinsville, has been appointed health officer, succeeding Dr George F Lewis, who resigned after twenty-three years of service——Dr Carrie North Stevens, West Cornwall, has been appointed health officer of Goshen

New Bureau of Laboratories—Dr Charles J Bartlett, New Haven, director of the pathologic laboratory, Yale University, has been appointed director of the bureau of laboratories of the state department of health, succeeding Prof Herbert W Conn, deceased——P E Bransfield, Ira D Joel, Ira V Hiscock and George E Stookey, who were assistants to Professor Conn, have been appointed to similar positions by the new director It has been decided to remove the laboratory from Middlebury to the Agricultural Experiment Station, New Haven

Free Orthopedic Dispensary—The New Haven Orthopedic Dispensary has been established by the New Haven Normal School of Gymnastics The institution is open daily and has ample equipment The staff consists of Dr Ernest H Arnold, who has been in charge of the orthopedic clinic of the New Haven Dispensary for twenty-three years, Dr James F Rogers and Dr Harry E Stewart, Washington The seniors of the New Haven Normal School of Gymnastics attend the daily clinics in sections, and carry out the manual and gymnastic treatment under the direction of the staff

GEORGIA

Personal—Dr Thomas F Abercrombie, Brunswick, has been elected secretary of the state board of health, succeeding Dr Henry F Harris, deceased——Dr John C McAfee, Macon, has been elected president of the Idle Hour Country Club

New Buildings Near Completion—On the campus of the Atlanta Medical College, now the medical department of Emory University, three fireproof buildings are being completed, and will be ready by the beginning of the session of 1917-1918 The cost, respectively, will be $90,000, $98,000 and $54,000

Hospital Item—Dr Harlan L Edwin and Dr John C Rollins have purchased the Herndon property in Dalton and will establish a hospital on the site——At the meeting of the city council of Carrollton, it was decided to accept the offer of the late C B Simonson to donate $10,000 toward the erection of a sanatorium For building and equipping the sanatorium about $30,000 will be required

ILLINOIS

Chicago

New Lying-in Hospital—The opening exercises of the Chicago Lying-in Hospital and Dispensary, located at Fifty-First Street and Vincennes Avenue, were held, July 28 The building is known as the Joseph Hobart Moore Memorial, is seven stories in height, and will accommodate 120 patients

Army Tuberculosis Work—Dr George Thomas Palmer, Springfield, president of the state tuberculosis association and a member of the committee on tuberculosis of the National Council of Defense, has appointed Drs Robert S Berghoff, Clyde D Pence and John H McClellan to examine the officers at the Fort Sheridan Training Camp, with special reference to tuberculosis Capt James A Britton, M O R C, has been assigned by Dr Palmer to similar work at Fort Benjamin Harrison, Indiana

Recruiting for Hospital Units—Recruiting for the new field hospitals, Nos 3 and 4, and for ambulance companies, Nos 1 to 4, under the direction of Major Gustavus M Blech, commanding Field Hospital No 1, has been completed, and the new hospitals and ambulance companies have been mustered into the state service The commanders of these units are Field Hospital No 3, Major Frederick O Frederickson, No 4, Major James J McKinley, Ambulance Company No 1, Capt George U Lipshulch, No 2, Capt Henry C Johannes, No 3, Capt J Kubik, and No 4, Lieut C S Rogne.

Personal.—Dr Hugh McGuigan, professor of pharmacology in Northwestern University, has accepted the position of professor and head of the department of pharmacology, materia medica and therapeutics in the College of Medicine of the University of Illinois——A banquet was given at the Morrison Hotel recently in honor of Capt George U Lipshulch, commanding Illinois Ambulance Company No 1——Major Philip S Chancellor, M O R C, U S Army, has asked a reduction in rank to that of captain in order that he may participate in the work of a unit now being formed in California, for service in France——Dr Edward L Moorehead has been appointed attending surgeon to the Mercy Hospital

KENTUCKY

Sanatorium Fund Collected—Up to noon, July 13, $40,000 of the $55,000 required for the Fayette County Tuberculosis Sanatorium, Lexington, had been subscribed

Hospital Unit Organizes—The Louisville City Hospital Red Cross Unit D, organized by Dr Lewis S McMurtry, Louisville, has the following personnel Director, Capt Irwin Lindenberger, M O R C, U S Army, chief of surgical division, Dr Charles Farmer, chief of medical division, Dr John B Voor, surgical section, Drs Isaac A Arnold, Elbert W Jackson, Lamar W Neblett and Harry L Pelle, medical section, Drs Charles E Gaupin, James H. Pritchett, Hiram S Eggers and George H Day

MARYLAND

Personal—Capt Thomas R Chambers and Lieut Edward D Ellis, Baltimore, have been appointed by Lieut-Col Henry Page, commanding the Medical Officers Training Camp at Fort Oglethorpe, Ga, members of the staff of the American Evacuation Hospital to be established in France

Infantile Paralysis Again Appearing—Several cases of infantile paralysis have appeared recently in Baltimore, and Health Commissioner John D Blake is making an effort to prevent a repetition of the outbreak of last year At Barton, Allegany County, several cases of infantile paralysis have appeared There has been one death at Barton

War Neuroses—At the invitation of Dr Adolf Meyer, Baltimore, the members of the Maryland Psychiatric Society attended a lecture on "War Neuroses" given by Dr Thomas W Salmon, New York, Medical Director of the National Committee for Mental Hygiene, July 26, at the Henry Phipps Psychiatric Clinic The lecture was illustrated by pictures obtained by Dr Salmon while abroad studying conditions at the front

Tuberculosis Conference Planned—The Maryland Tuberculosis Association announces a conference in Baltimore, October 18 and 19, of representatives of North Atlantic states. The general assembly at its session next winter will be asked to make large additions to the state's equipment for dealing with this disease. A local committee, of which Louis Hamman is chairman and H Wirt Steele, secretary, is arranging the conference

Meetings—The first annual meeting of an association of medical societies of the Eastern Shore of Maryland, the Eastern Shore of Virginia, and Delaware was held at Ocean City, Maryland, July 26 The committee in charge of organizing the new association consisted of Drs J McFaddin Dick, Salisbury, chairman, Henry M Lankford, Dawson O George, W H Houston, A A Parker, W N Palmer, H A. Cantwell, Princess Anne, Frank B Hines, Chestertown, Herman F McPherson, Centerville, and Eldridge E. Wolff, Cambridge, secretary

MASSACHUSETTS

Personal.—Dr Ralph R. Fitch, Dorchester, Boston, was made a Knight of the Legion of Honor for distinguished work in his hospital at St Valery-on-Caux, by President Poincare——Dr Henry L Flynn has been appointed technical assistant in the bacteriologic department of the Boston Health Department

Hospital Dedicated—The Benjamin Stickney Cable Memorial Hospital, Ipswich, was formally dedicated, July 21 The building with its equipment is the gift of Mr and Mrs Richard T Crane, Castle Hill The hospital has at present arrangements for twenty-four beds, with an ultimate capacity of 150 beds, and has an endowment fund of $30,000

Health Boards Hold Meeting—At the regular quarterly meeting of the Massachusetts Association of Boards of Health, held at Pemberton Inn, Hull Mass, July 26, Dr Fred W Johnson secretary of the Civilian Health Committee of the Boston Chapter, American Red Cross presented a paper on "The Red Cross and Health in Civilian Communities," and Dr Charles E Simpson, Lowell, city health officer, discussed "A Large Concentration Camp in Its Relation to a Civilian Community"

Directory of Food Facts—An Information Bureau and Directory of Food Facts has been established at 69 Bedford Street Boston, under the auspices of the War Service Committee of the Boston Women s City Club The objects of the bureau are to collect and catalog literature on food conservation to catalog agencies in the state for dealing with this problem, to act as a clearing house for other social forces in Boston capable of assisting in food conservation, and to publish a bulletin of information called *Food Facts*

MONTANA

Hospital Incorporated—Articles of incorporation of the Billings Deaconess Hospital were filed, July 13 The amount of capital stock is not recorded It is stipulated that all accruing profits shall revert back to the maintenance fund, and that any balance remaining is to be devoted to charity uses in connection with hospital purposes

Suggest Changes in Medical Examinations—The jury of physicians that upheld the action of the state board of medical examiners in denying a license to Dr Tracy T Noland returned a supplemental report in the district court recommending the state board change its systems At present only five questions are asked applicants the physicians aver, and if a man fails in one he must make a perfect answer to the other four to pass The jury recommends fifteen questions be submitted and that applicants be privileged to answer two-thirds It also deprecates the practice of giving catch questions

NEBRASKA

Hospital Item—The cornerstone of the New Swedish Mission Hospital Omaha was laid July 15——The Lincoln Hospital has been incorporated with a capital stock of $10,000 and with the object of conducting a hospital for the treatment of obstetric, medical and surgical cases, and the training of nurses

New Advisory Board—The advisory board to the state board of health provided for in the Fox bill passed by the last legislature has been appointed by the governor and includes Dr Joseph J Hompes Lincoln, Dr Joseph E. Spatz, Fairfield, Dr William T Johnson Pawnee City, and Dr Charles L. Mullins Broken Bow

Personal.—Dr Edwin W Cook, Plattsmouth, has been appointed supreme medical director of the Modern Woodmen of America, and has moved to Rock Island Ill——Dr H Winnett Orr formerly superintendent of the State Orthopedic Hospital Lincoln has been assigned to duty in the Welch Metropolitan War Hospital near Cardiff, South Wales

NEW YORK

Personal.—Dr Paul E Betowski has been appointed surgeon-in-chief of the Bath Soldiers' Home Hospital, succeeding Dr Raymond C Hill, who has been called into active service——Dr Otto Pfaff, Oneida, has been elected president, and Dr Nelson O Brooks, Oneida, treasurer of the Madison County War Emergency Committee on Tuberculosis

New Laws Affecting Public Health—The *Weekly Bulletin* of the department of health July 14 gives a summary of recent legislation affecting public health work Among these laws are the following General Corporation Law, providing for the revocation of charter or authority to do business in this state of corporations which conduct their business in another state in such a manner as to create a nuisance in this state by discharge of dust, smoke, steam, gas or offensive odors or fumes On complaint, the state commissioner of health is to determine whether a nuisance is being committed This law provides a remedy for the abatement of the nuisance caused by the offensive fumes arising from the manufacturing plants located in New Jersey opposite Riverside Drive and opposite Staten Island——Senate Bill No 242, introduced by Mr Gilchrist, requiring laboratories and places where live pathogenic germs are handled or cultivated to be licensed by the state department of health The fee is $1 Each culture sent out by such laboratory must be labeled to show the laboratory license number, name of person obtaining it, and destination of the germs——Senate Bill No 488, adding a new section to the Education Law, providing for the education of children with retarded mental development It requires local school authorities to ascertain the number and provide classes for such children——Senate Bill No 35, introduced by Mr Whitney, requiring the superintendent of the state hospital at Ray Brook to give superintendents of county tuberculosis hospitals courses in the diagnosis and treatment of tuberculosis and in hospital administration, and regulating the receipt of free patients at the hospital——Assembly Bill No 1509, introduced by Mr Grant, providing that standardized evaporated or condensed milk must contain not less than 25 5 per cent of milk solids and not less than 7.8 per cent of milk fats Sweetened condensed milk must contain not less than 28 per cent of milk solids and not less than 8 per cent of milk fats

New York City

Camp to Become Hospital—The reserve camp at Sacket Harbor known as Madison Barracks, is to be used as a hospital after the present reserve camp ends about August 15

Floating Hospital Needs Funds—The Floating Hospital of St Johns Guild, which sails every day with 1,000 sick babies and their mothers, makes an appeal for funds with which to continue its work The wards of the Seaside Hospital also supported by St John's Guild are overcrowded with sick babies

Drafted Men to Be Treated Free—The medical examiners of the men drafted in this city have arranged for men who want to enter the draft army but are barred by physical disabilities that may be removed by operation to be treated free at Bellevue Hospital It is hoped that other hospitals will make similar offers

Honor to Doctor Baruch—At a meeting of the committee on departments of the New York city council, it was recommended that the Rivington Street Public Bath in the Borough of Manhattan be known hereafter as the Dr Simon Baruch Public Bath in honor of Dr Simon Baruch, the first person to make a plea for the institution of such baths in the United States

The Blackwell Island Fire—The committee on finance of the city council of New York has recommended the issuance of special revenue bonds, amounting to $7,000, for the purpose of reimbursing clergymen physicians and others, serving in an official capacity, connected with the department, who suffered losses by fire at the workhouse on Blackwell's Island, March 17

Columbia University Admits Women Medical Students—A gift of $50 000 from George W Brackenridge of San Antonio, Texas, will enable Columbia University to open its doors to women students this fall An addition to the present building will be begun at once, in order to provide laboratory facilities in the departments of chemistry, pharmacology, pathology and bacteriology

Surgeons as Police Aids—Three hundred surgeons of New York have been enrolled in the Police Surgeon Auxiliary Medical Corps which also includes the surgeons of the police and fire departments The corps has been organized through the Women's Auxiliary of the New York Hospital Dr Edward T Higgins, as chief police surgeon, is commanding officer Each borough forms its own unit and is in charge of a borough chief The borough chiefs include Dr Harold Barclay, Dr Alban E Munson, Dr Walter D Sherwood, Dr William T Scovil, Richard Hill, and Dr Alfred H Thomas, New Brighton

Personal.—Dr George David Stewart was operated on for goiter in St. Mary's Hospital, Rochester, Minn, July 20——Dr Victor W Anderson was seriously injured, July 19, when an automobile in which he was riding collided with a streetcar——Capt. Le Compte du Nouy and Major Lowey, who have been working with Dr Alexis Carrel, have arrived in this country to demonstrate the new methods of treating trench wounds——Dr Michael J Thornton, assistant superintendent of Bellevue Hospital has been appointed captain and assistant surgeon in the Medical Corps of the United States Army

Adequate Dispensary Treatment for Venereal Diseases—At the last meeting of the board of health the following new section was added to the sanitary code to take effect immediately Section 223 *Dispensaries—Communicable Disease*, *Regulations* "No public dispensary where communicable diseases are treated or diagnosed shall be conducted or maintained otherwise than in accordance with the regulations of the board of health" Under this section the department expects to compel dispensaries either to give up their departments for venereal disease or else to meet the standards set by the department of health, standards demanded by our present knowledge of these diseases and by the important relation of venereal disease to public health.

Labor Sanitation Conference—The workers in this city have organized a movement for industrial sanitation, with headquarters at 32 Union Square The chairman is Alfred J Boulton, and the medical adviser, Dr Louis I Harris The purposes of this organization are 1 To find ways and means for labor to justly express its sanitary needs, and to establish direct communication with the official sanitary agencies of the nation, state and city 2 To have representatives from all ranks of all laboring groups in the city act as a vigilance committee to guard sanitary standards 3 To confer and agree on proper standards in their respective trades 4 To form trade group committees to further the sanitary interests of workers in their respective fields 5 To insure labor the opportunity to be consulted about educational work and to give it a part in disseminating such education 6 To create public opinion for the enactment of such additional laws as may be required to safeguard the health of workers

Health Department Issues Annual Report—The annual report of the New York health department for the year 1916 shows that despite the epidemic of poliomyelitis last summer the death rate was the lowest the city has ever recorded, namely, 13 89 deaths per thousand population The per capita cost of the department's activities have also been lower than for many years past, namely, 59 1 cents, whereas the average in recent years has been 65 cents Among the most notable achievements to which the report calls attention was the reduction of the infant mortality rate In 1910, out of every thousand infants born, 125 died during the first year of life, in 1915 the rate was ninety-eight In 1916 it was ninety-three The number of deaths from typhoid fever during the year was 1,617, as compared with 2,456 for the year preceding, a decrease of 839 In 1916, only 3,205 persons were bitten by dogs as compared with 3,648 in 1915 Only twenty-three rabid dogs were encountered in this city in 1916 as compared with 113 in 1915 The birth records show an actual decrease of 3,592 over the number for the preceding year The reasons for this are ascribed to the decrease in foreign immigration and the low marriage rate experienced during the previous year this being probably due to financial depression, nonemployment, etc The year 1916 witnessed an increase in the number of deaths from violence, 4,235 deaths from this cause occurring in 1916 as compared with 3,819 deaths in 1915 In commenting on these the report states that the majority of these deaths were avoidable

NORTH CAROLINA

War Study—The Buncombe County Medical Society, Asheville, N C, is holding regular weekly meetings for the purpose of special study of subjects pertaining to the war

Personal—Dr James S Mitchener has been appointed whole time health officer for Lenoir County, under the three-year cooperative plans arranged between the North Carolina State Board of Health and the counties for certain specific purposes Ten North Carolina counties have volunteered for this work To date Wilson, Nash, Northampton, Davidson and Lenoir counties have been accepted The city of Kingston will have a joint board of health with the county under direction of Dr Mitchener——Dr Thomas J Summey, Brevard, prior to leaving for Ft Oglethorpe, Ga, was tendered a banquet by citizens of Transylvania County at which he was presented with a watch——Gov Thomas W Bickett has designated Dr Charles O'H Laughinghouse, Greenville, and Dr John W Long, Greensboro, medical members of the district exemption boards

NORTH DAKOTA

Amalgamate for Sanitary Work—The state board of health, the state public health laboratories and the state antituberculosis association have amalgamated under the name of the North Dakota Public Health Service The organization has already begun a sanitary survey of Park River

Personal.—Dr Henry E Dahleen has been appointed local surgeon for the Minneapolis, St Paul and Saulte St Marie at Hankinson——Dr Henry H Healy has presented a flag and flag-pole to the St Michael's Hospital, Grand Forks——Major Frank E Wheelon, Minot, has been commissioned major, M C, N D N G, and assigned to duty with the Second Infantry

PENNSYLVANIA

York County Makes a Creditable Record—York County Medical Society reports that 41 out of its membership of 121 have taken the examination for the Medical Reserve Corps

Hospital Dedicated—The new main building of the Grand View Hospital at Sellersville was dedicated with fitting ceremonies, July 22 Dr Wilmer Krusen delivered the dedicatory address

Personal—Dr John B Lowman, Johnstown, councilor for the fifth district, goes to France as a member of the Jefferson Medical College Unit——Dr Joseph P Ritenour, Uniontown, has been appointed college physician to the Pennsylvania State College——Dr George R. Moffitt, city bacteriologist of Harrisburg and a member of the Medical Reserve Corps, has been ordered to the Rockefeller Institute in New York for advanced work preparatory to entering active service——Dr Warren H Butz, Allentown, has been appointed resident physician of the Taylor shipbuilding camp at Cornwells

Philadelphia

Hospital Property Sold—The property of the Providence General Hospital, consisting of the hospital building and 6 acres of ground on Lincoln Drive, Fairmount Park, has been acquired by the city for park extension The price paid for the institution was $80,000

Personal—Dr Thomas McCrae, professor of internal medicine in Jefferson Medical College, has been made chief medical officer of the Ontario Military Hospital, Orpington, Kent, England This institution is said to provide 2,040 beds——Dr Richard Penn Smith, Ft Louden, has been made a member of the Red Cross Mission to be sent to Roumania

Medical Institutions—The officers of the Central Pennsylvania Roentgen Ray Society for the ensuing year are Dr Harry M Stewart, Johnstown, president, Dr Forrest L. Schumacher, Dubois, vice president, Dr William E Reiley, Clearfield, secretary-treasurer, Drs Russell H Boggs, Pittsburgh, Francis C Smathers, Punxsutawney, and Horatio W Gass, Sunbury, censors, and Dr Gerald D Bliss, Altoona reporter and editor The next meeting will be held in Altoona in October

Reception to Jefferson Unit.—The Ladies' Auxiliary of the Jefferson Medical College entertained the sixty-five nurses in the college library, July 26 These nurses are to constitute the nursing staff of Jefferson Base Hospital No 38 Addresses were made by Mr William Potter, president of the Board of trustees, Alba B Johnson, a member of the board of trustees and Dr William M L Coplin, director of the unit. Each of the nurses was presented with a special Jefferson Medical College Hospital pin——A three days' campaign by the Logan Improvement League, Fourth of July Committee and the Logan Branch of the Emergency Aid resulted in the collection of $2,500 This sum is to be used to purchase an ambulance for Jefferson Base Hospital No 38

SOUTH DAKOTA

Personal—Lieut Harry T Kenney, M C, S D N G, Highmore, has been transferred from the Fourth Infantry and promoted to major, being assigned to duty with the First Cavalry——Dr Isaac W Leighton, Scotland, has been commissioned captain, S D N G, and assigned to duty with the Fourth Infantry——Dr Park B Jenkins, Waubay, has been appointed physician to the state nurses' examining board.

VERMONT

Addison County Physicians Elect—At the annual meeting of the Addison County Medical Society, in Middlebury, the following officers were elected president, Dr Charles H Dean, Middlebury, vice president, Dr Peter L Dorey, Middlebury, and secretary-treasurer, Dr Edward H Martin, Middlebury

Accepts Certificates of National Board—At its recent business meeting, the Vermont Board of Medical Registration voted to accept certificates granted after examination by the National Board of Medical Examiners This is the twelfth state in which either by special legislation or by board rulings certificates of the national board have been recognized

Infantile Paralysis—The state board of health after a conference with the governor, has issued an order forbidding the holding of state and county fairs chautauquas street carnivals or circuses until further notice The cause for this interdiction is the prevalence of infantile paralysis, sixty-eight cases having been reported, the majority of which were in Washington County

WISCONSIN

Smallpox—Smallpox has developed in Company I, First Wisconsin Infantry, in camp at Beloit.

Tuberculosis Camp Established—A summer camp for children suffering from tuberculosis has been established near Neenah, Wis by the common council of that city

Hospital Items—Drs Robert B Clark and Wilson G Bear announce that they are about to open a hospital in Monroe ——Excavation work was commenced on the St Mary s Hospital Ladysmith July 1 The building will be three stories in height with a basement and will cost about $30 000——The Dominican Sisters have been presented with 5 acres of land on the lake shore near Kenosha and will erect a hospital on this site.——The Lakeside Methodist Hospital Company has been incorporated to establish, conduct, maintain and operate a hospital and a training school for nurses at Oshkosh The incorporators are Dr Wilbur N Linn, C C Konrad and Dr John G Morris

Personal—Capt. Edgar C Barnes Ripon has been commissioned major M C Wis N G., and assigned to duty with the Fourth Infantry ——Dr George Martin, Baldwin, announces his retirement after twenty three years' practice ——Dr Miles D Cottingham Lake Geneva has been commissioned first lieutenant M C., Wis N G——Drs Oscar Lotz Milwaukee, Frederick C Haney Watertown, Fay T Clark Waupun and Edward Murphy Eau Claire, have been appointed members of the state board of medical examiners ——Dr T J McCrory Racine has been appointed physician to the state athletic commission——Col Gilbert E. Seaman, chief surgeon Wis N G, has resigned from the Board of Education of Milwaukee

CANADA

Dominion Medical Council.—At the fifth annual session of the Dominion Medical Council held recently in Ottawa, the registrar s report was submitted It showed that thirty six practitioners in Canada over ten years in practice had registered as members since the last annual meeting, and that thirty-five candidates had successfully passed in the two examinations spring and fall The next examinations will be held in Montreal and Halifax on the second Tuesday in October, in Toronto and Winnipeg on the third Tuesday in June 1918. The following officers were elected president, Dr Emmanuel P Lachapelle, Montreal, vice president Dr R Eden Walker New Westminster B C., and registrar Dr Robert H. W Powell Ottawa (reelected)

Personal.—Surg-Gen John T Fotheringham, C. A. M C., Toronto, has returned after two years' service in France and recently made a tour of the Northwest, in the interests of the recruiting propaganda.——Dr Donald MacGillivray, Toronto, is home on furlough from the University of Toronto Base Hospital at Saloniki where he has been nearly two years——Lieut-Col D King Smith of the University of Toronto Base Hospital who came back from Saloniki last fall, returned to England for active hospital work Malaria which he contracted in Greece however, had seized too strongly on his system and he has again returned to Toronto——Dr Edwin G Hodgson Toronto has joined the C A. M. C and has left for England.——Dr Ansel M J Tanney, Montreal, has been appointed superintendent of the General Hospital Quebec City——The Military Cross has been awarded to Capts Frank L. McKinnon Winnipeg and Frank M Walker Stony Creek——Major Thomas D Archibald, Toronto, who has been overseas a year has been appointed chief medical officer of the Military Hospital Whitby Ontario——Lieut.-Col H Ernest Kendall Halifax Sydney N S is now in command of the St. Francis Xavier Hospital at Bramshott, England——Dr J H Carson Vancouver, B C., has been appointed medical superintendent of the Langara Convalescent Hospital, British Columbia.

GENERAL

Tuberculosis Conference—The Southwestern Tuberculosis Conference will meet at Hotel El Tovar, Grand Canyon, Ariz, October 21 to 23

Orthopedists Elect Officers—At the annual meeting of the American Orthopedic Association, the following officers were elected president, Dr Herbert P H Galloway, Winnipeg, Manit., vice president, Dr Walter G Stern, Cleveland, secretary, Dr John Ridlon, Chicago, and treasurer, Dr Gwilym G Davis, Philadelphia

Not Yellow Fever—Surg-Gen Rupert Blue, U S P H S, advises that the news notice in The Journal of July 14, regarding a patient with yellow fever, said to be held at the Reedy Island quarantine was based on erroneous information as the postmortem findings were sufficient to exclude a diagnosis of yellow fever

Obstetricians and Gynecologists to Meet—The American Association of Obstetricians and Gynecologists will hold its thirtieth annual meeting at the Robert Treat Hotel, Newark, N J., September 17-19 under the presidency of Dr John William Keefe Providence R I Dr Edward J Ill, Newark, is chairman of the committee of arrangements

Control of Cancer—The National Council of the American Society for the Control of Cancer, at its June meeting, adopted a resolution commending the "action of the U S Bureau of the Census in publishing its notable report on the mortality from cancer in the U S Registration Area in 1914, and recording its appreciation of the courteous cooperation of the Director of the Census and all the members of his staff who contributed to the contribution of this unique volume which represents an unparalleled contribution to the statistical study of malignant disease, and has already furnished the basis for many promising special investigations"

Bequests and Donations—The following bequests and donations have recently been announced

Fayette County Memorial Hospital Indianapolis, $10 000, by the will of Edward Anstedd

Presbyterian Hospital Chicago, and Massachusetts General Hospital, Boston each $10 000 Perkins' Institute for the Blind and Massachusetts Institute for the Blind, Boston, and Pasadena, Calif, Hospital each $5 000 by the will of Mary Rose Harris, Chicago

Coodhue County (Minn) Tuberculosis Sanatorium, $1,000, by the will of Mrs Minnie M Barlow, Canyon Falls

Lakeview Hospital Chicago, and Home Hospital, Lafayette, Ind, each one half of the estate valued at $175 000, of Mrs. Nicholas W Box, on the death of the husband of the deceased

FOREIGN

State Department of Public Health in Austria—The *Policlinico* of Rome states that the new emperor of Austria has organized a new state department, the chief of which is to be known as the minister of hygiene and social welfare

Japanese Medical Officers on Way to Roumania.—One hundred Japanese physicians are said to be on the way to Roumania in charge of Dr Motegi, chief of the Saiseikai Hospital and head of the surgical department of the Keio University

Cost of Medical Service in Leeds—Records of the medical service in the schools of Leeds show that in the year 1915-1916 the cost was $18 444 Nine physicians and six nurses were employed, and 18,069 children were examined, the treatment including both medical and dental attention

Hookworm in Brazil.—Through the efforts of Dr Charles Seidl director of the public health department, and Drs Lewis Wendell Hackett and George Stone of the Rockefeller Foundation, the Brazilian government has given the institution a free hand to wage a campaign against hookworm in the interior of Brazil

Medals for Repatriated Physicians and Nurses—It is announced in France that the *médaille d honneur des épidémies* is to be conferred on a number of recently repatriated nurses and physicians who have been in prison camps in Germany and Austria. This is in honor of their conspicuous devotion during epidemics in the prison camps

Italian Physician Condemned for Aiding Malingerer—A courtmartial at Ancona has just condemned to a year in a military prison a private in the artillery on account of a factitious infectious process which had temporarily disabled him The inoculation had been done for him by a surgeon, U P Vincenzo of Bari, who was sent to prison for six months

Change in Staff of "Riforma Medica"—According to the wishes of the late Professor Rummo, the founder and director of the *Riforma Medica* of Naples, the weekly passes into the hands of Prof. A. Cardarelli, chief of the second medical clinic of the University of Naples, and Prof E. Maragliano, professor of clinical medicine at the University of Genoa and pioneer in various branches of medicine, especially in tuberculosis A. Ferrannini is to be the editor in chief He is professor of clinical medicine at the University of Camerino The *Riforma* is now in the thirty-third year of its dignified existence Its large pages, large type and broad spacing have always set it apart from its more strenuous fellow journals

LONDON LETTER

London, July 11, 1917

War Bread

War bread—the only bread now permitted—is made from wheat and flour milled to 81 per cent to which a minimum of 20 per cent of maize products, barley, oatmeal, rye, rice and beans must be added This bread is more nutritious than the white bread, made from wheat milled to a lower percentage, which was practically universally used before the war It is no hardship whatever to eat war bread, but a certain number of people find it less palatable, and complaints have been made that it is less digestible and produces skin eruptions, and that it quickly becomes stale and uneatable Many of these complaints are unfounded, but some bakers have not been very successful in dealing with the new flour and have produced an unpalatable loaf Moreover, a "disease" of bread, the "rope" disease, has made its appearance sporadically throughout the country When a piece of ropy bread is broken it is found to be gummy inside, and when pulled apart this sticky substance is drawn out into numerous glistening strands The whole bread problem is being investigated by experts appointed by the government The rope disease has been found to be due to a germ — the *Bacillus mesentericus*—which is generally present in any dirt or dust and is usually found on the outer husk of wheat The germ is almost always present in flour, but milling to a higher percentage of extraction and the use of wheats of lower grades, such as are now coming to this country, tends to increase the risk. The bacillus is normally quite harmless, but when the conditions are favorable it causes fermentation, and the bread becomes "ropy" In the earlier stages of the disease the bread is unwholesome, and in the later uneatable There does not seem to be any evidence that admixtures increase the risk of "rope" The conditions leading to the fermentation are warmth and excessive moisture, and the wide distribution of the trouble recently is probably partly due to the exceptional weather conditions Generally speaking, bakers have done their best under difficult circumstances, and with increased experience it is believed that they may succeed in producing a still more nutritious and palatable bread It has been found impossible for bakers to maintain an exact weight of the loaf, and the absence of any latitude in weight has had a tendency to underbaking This seems to be a disposing cause of "rope" After baking, the desire to avoid loss in weight leads the baker to cover the loaves with damp cloth, producing the exact conditions most favorable to the growth of germs The combination of undercooked dough with a moist warm temperature appears exactly suitable for the growth of "rope" Mr W B Hardy, F R S, secretary of the Royal Society, one of the experts appointed by the government, states that the *Bacillus mesentericus* is exceedingly tolerant of heat and therefore is not killed in baking He makes the almost incredible statement that five hours' boiling is necessary for its destruction

Baby Week

The great loss of life in the war has caused increased attention to the saving of infant life A national baby week campaign has taken place in order to awaken the public conscience and promote measures which make for the welfare of mothers and children The queen opened a child's welfare and mothercraft exhibition, and a public meeting of health and social workers was held in the Guildhall and addressed by three ministers of state. All the machinery of propaganda has been set in motion, and no effort has been spared to bring home to parents, municipal authorities, societies, schoolchildren and the general body of citizens, by meetings, lectures, leaflets, exhibitions, competitions, cinematograph films and in a score of other ways, the vital importance of mobilizing for the prevention of infantile mortality and the preservation of the health of mother and babies Baby shows and "pram parades" are among the more picturesque features of the plan for popularizing the cult of the child Lord Rhondda, lately president of the Local Government Board, stated at the Guildhall meeting that through carelessness, want of knowledge, and lack of the necessities of life, 2,000 infant lives are lost every week under the age of 1 year, and 3,000 a week under the age of 5 According to medical authority, at least 1,000 of those 3,000 lives could be saved This saving it is hoped to effect by the campaign A greater effect would be that the bulk of the babies who lived would be stronger, and when they grew up, more efficient citizens What are wanted are cleaner and healthier homes, proper food and care for expectant and nursing mothers, more maternity centers, more health visitors, more skilled attention for mothers and children, and pure milk for the children

Anthrax from Shaving Brushes

Some time ago I reported cases of anthrax due to a cause not previously recognized—infected shaving brushes A government inquiry has been conducted into the subject by Dr F H J Coutts He found that the hair used in making these brushes consisted in great part of Chinese horsehair, which had not been disinfected The remaining unmanufactured hair from the same source was found to be largely infected The manufacturer explained that the hair was invoiced to him as "goats' hair," which does not come under the Home Office regulations, and that for this reason he had not subjected it to disinfection Four other cases of anthrax were traced to brushes made in New York, and a consignment of shaving brushes from Japan was found to be heavily infected with anthrax. The Local Government Board has under consideration what administrative action is required to make sure that hair used in the manufacture of shaving brushes in this country is satisfactorily sterilized before the brushes are manufactured It will be necessary also to see that imported brushes are similarly free from infection. For this purpose, a guarantee of origin may be desirable, as well as examination of samples of brushes after importation

The British Medical Association and the Insurance Act

In spite of the war, the discussion of the working of the insurance act continues The British Medical Association has issued a report based on the views of all its local branches and divisions which were asked to appoint representative subcommittees to consider the present system so far as it affects the relation of the medical profession to the public health and the treatment of disease, and to make suggestions for its improvement The general system in the main is approved It is agreed that there must be an extension of the number of salaried medical officers in connection with preventive medicine and of purely administrative officers, on both the preventive and clinical sides, but that the treatment of individual patients, in their interest as well as in that of the profession, shall not be through salaried officers but by physicians paid by some method dependent either on the actual items of work done or on the number of persons for whom they accept responsibility It is held that healthy competition as far as possible on the lines of private practice keeps physicians up to a good level of efficiency and encourages initiative and individuality The wide possibility of the choice of physician by the patient tends to promote that influence of personality and that mutual confidence so important in treatment. If it is said that the patient is often unable to exercise a wise choice, it can be replied that he is more likely to know the physician who most appeals to him than any other person or body can The systematic partitioning off of particular classes of disease from the general practitioner's usual work is held to be uneconomical, unscientific, detrimental to the interests of the patient, and productive of deterioration in the general standard of professional ability Whole-time appointments in a state service would of necessity be made by bodies in which the lay element was paramount, and advancement by influence or for political or other improper reasons would be not unlikely All are agreed that the present system is imperfect and should be modified so as to attract as many physicians as possible Benefits should be extended so as to include a consultant and specialist service and institution treatment.

The War

THE VALUE OF WILD FOODS

As stated in a previous letter, attention is being directed to the value of wild foods which are almost entirely neglected The inhabitants of rural districts are being shown what extensive supplies of natural food lie at their doors and around their dwellings, and are being taught so to utilize them that the ordinary products of the farm, garden or allotment may be made available, at a remunerative price to the grower, for the sustenance of the population of the larger towns and cities Following the recent publication of a practical guide to 'The Wild Foods of Great Britain,' which indicates over 260 different articles of diet only awaiting collection of those who have learned to distinguish them and provides recipes for their treatment in order to render them palatable and nutritious it has been decided to send to the villages and smaller towns lecturers and demonstrators, equipped with traveling kitchens or using the school kitchens and appliances already possessed by the various education committees They will point out to the people the wild foods immediately available in their own localities and show them how to prepare them for home consumption The amount of available wild food that has been wasted in England in past years is incalculable. In continental countries and to a lesser extent in Scotland, these natural sources of supply have never been neglected, while in most parts of the kingdom some one or other wild product of the countryside has always been used by its inhabitants The instructors to be sent out by the county councils will find that in one place snails, in another the edible frog, in others hedgehogs in some nettles or whortleberries, or avrons or the edible fungus called blewits, and on the coast dulse and laver and samphire, are already commonly eaten Basing their instruction on the fact that some one or other of the natural foods of the country are already eaten by the inhabitants of the locality they are visiting, it will not be difficult for them to demonstrate that there are others of the seventy-odd food-producing plants, edible fungi and fresh-water fish equally worth gathering and eating The plan to be adopted is for the lecturers and demonstrators in wild food collection and cookery to visit the smaller centers either with a caravan fitted as a traveling kitchen or with one of the traveling kitchens already possessed by different county councils and after they have examined the natural resources of the locality and determined its available food supply at the moment, to deliver a brief lecture in the schoolroom parish hall or on the village green and to call for volunteers from the inhabitants—schoolchildren teachers and others—to form a collection of them on the following morning This collection will be brought to the traveling kitchen or to that of the schoolhouse and the demonstrator will then give practical instruction to the villagers in the different methods of preparing them for food

PARIS LETTER

Paris July 12, 1917

Personal

Dr Henri Roger, professor of experimental and comparative pathology at the Faculte de medecine de Paris, has just been chosen dean of the institution in place of Professor Landouzy deceased Dr Georges-Eugene-Henri Roger was born at Paris in 1860 He became hospital intern in 1883 and doctor of medicine in 1887, his thesis being The Action of the Liver on Poisons" In 1892 he was appointed surgeon of the Hopitaux de Paris and agrege at the Faculte de medecine, and in 1905 he was given the chair of experimental pathology He was a pupil of Bouchard, and made a special study of infectious diseases, their origin, their evolution, the resistance of the organism to their invasion, and the therapeutic treatment recommended in divers cases Autointoxication and malignant tumors have likewise been favorite subjects of research Roger presided over the first Congres de pathologie comparee, and was an active collaborator of the Dictionnaire encyclopedique des sciences medicales" and the Traite de pathologie generale' by Bouchard He is also author of an Introduction a l etude de la medecine,' which deserves to become a classic Professor Roger has been a member of the Academie de medecine since 1910

Dr Widal professor of internal pathology at the Faculte de medecine de Paris has been appointed at his own request, professor of the medical clinic of the same institute, in place of Professor Landouzy

Death of Dr Albert Mathieu

Dr Albert Mathieu, physician of the Hopitaux de Paris died recently aged 59 He had specialized in diseases of the stomach He was the author of numerous works on this general subject, as well as many special studies on alimentary regimens for dyspeptics the hygiene of obesity and gout, etc. Dr Mathieu was the organizer of the first three Congres d hygiene scolaire which brought to Paris educators and medical men from all parts of the world

The War

SOLDIERS CONVALESCING FROM MALARIA

At the last meeting of the Academie de medecine, Dr. Jeanselme, agrege professor at the Faculte de medecine de Paris, and physician of the Hopitaux de Paris, called attention to the desirability of excluding from the hospitals such soldiers as have been suffering from malaria, but whose condition is improved, though not sufficiently to allow them to return to their regiments The preferable disposition of such semi-invalids seems to be to send them to the abandoned farms, which there has been an organized effòrt to reclaim These soldiers would be divided up into groups, and would work under superintendents A physician would inspect them from time to time and would report on the effect of the work which it would be the endeavor to adapt to their weakened strength It would be necessary, moreover, to ascertain in advance whether or not the country to which they were to be sent is infested with mosquitoes of the genus *Anopheles*, which are carriers of malaria

THE REEDUCATION OF WAR CRIPPLES

The senate has just finished the examination of the proposed bill looking to the obligation of vocational reeducation of the war wounded and the war cripples who are beneficiaries of the law regarding military pensions

The first paragraph of Article I reads thus All soldiers, or former soldiers of the army or navy suffering from infirmities resulting from wounds received or diseases contracted or aggravated during the present war may demand enrolment at a school for vocational reeducation, with a view to their readaptation to work especially to their vocational reeducation and their future employment

The proposed bill as a whole having been passed by the senate, this body declared that it is a matter of urgent necessity to carry on vigorously the vocational reeducation of the war wounded and the war cripples during the discussion of the bill before the Chamber of Deputies, and expressed the hope that the government will develop and stimulate the action of the organizations created by the state, the several departments and the communes and will encourage the work begun through private initiative, which has sprung up since the very beginning of the war throughout the whole country having for its purpose the giving to the victims of the war the place to which they are entitled in the economic life of the nation

PREPARATION OF INVALID LIST

Justin Godart, undersecretary of state for the military medical service, has just addressed a communication to the chairmen of the different district boards, the purpose of which is to avoid any delay that might arise in the preparation of the invalid list This communication emphasizes especially that the chief surgeons should prepare promptly the lists required by the medical and administrative service, said lists to contain names of the wounded and the sick that may be eligible to pensions or allowances In case boards do not respond within ten days to the demands as set forth in this communication, an appeal may be taken to the general in command of the district whose officials are dilatory The chairmen of the boards and the consulting medical officers must see to it that the names of the wounded and the unfit, who are entitled to be placed on the invalid list or the pension list, are sent to the special commissioners as soon as possible. They will be held personally responsible for any delays or any evidence of neglect of duty

THE ARMY MEDICAL CORPS AND THE WAR

At the instance of the Union des Syndicats medicaux de France, a delegation of representative medical officers has been sent to Justin Godart, undersecretary of state for the military medical service to present to him the recommendations of the Army Medical Corps, which were as follows 1 The appointment of medical officers, with the rank of "sous-aide-major 2 The promotion of capable medical officers, together with the accordance of special distinctions 3 The retirement of medical officers who on account of age or ill health are unfit for service 4 The application of the decree of Oct. 17, 1916, relative to the new status of the Army Medical Corps This decree should be modified in such a way that the alphabetical arrangement of the names of medical officers going to the front shall be superseded by an arrangement which would permit of consideration of the time spent at the front and the wounds received Publication of this list is demanded 5 The desirability of consulting the medical associations of each department in regard to the organization of the civil clientage in the sections of the country that are bereft of physicians 6 The status of the students of the P C N and of foreign students and medical men

ANTITETANIC SEROTHERAPY

In connection with the recent discussions held at the Societe de chirurgie de Paris on the value of antitetanic serotherapy, Dr Chavasse communicated to the society an important statistical study on the cases of tetanus (213) encountered in the army during the period of fifteen months, extending from Nov 1, 1915, to Feb 1, 1917 The general conclusions that may be drawn from this study are

1 The preventive injections of antitetanic serum employed in cases of gunshot wounds, even though they may not have always prevented the development of tetanus, have shown their efficacy in an incontestable manner in bringing about a very perceptible diminution of the number of cases of this dreaded complication in the hospital units of the army

2 The gravity of tetanus has been shown in a general way in relation to the gravity of the local lesions It has been found to be especially excessive in the complications of frost-bites Tetanus appears to become less grave in war wounds in proportion to the number of preventive injections given, even though one may be dealing with the most serious and complicated cases

3 The preventive doses employed have not always been proportioned in accordance with the gravity of the wounds However, it was recommended to the army in June, 1916, on ie advice of Roux and Vaillard, that the standard dose of c c should be doubled or even tripled, at least for the first ction, in the case of wounds with extensive lacer ons, id infected wounds, especially such as contain foreign bodies One may add multiple wounds, even though not at all serious In the moderate and serious cases, it is indispensable to repeat the injections with the dose of from 10 to 15 c c. if the first injection was 30 c c, or with a *much stronger dose if the first injection was only* 10 c c., using from 20 to 30 c c, according to circumstances, at intervals of from seven to eight days, which makes it possible to avoid more easily many untoward results of an anaphylactic nature

4 In the complications of frost-bite with phlyctenules, ulcerations or gangrene, the first dose should be from 20 to 30 c c , and, according to the advice of Raymond, the injection should be repeated with a dose of from 10 to 15 c c for all these cases, and even with 20 c c in serious cases, at intervals of a week, until recovery

5 In order to be fortified against late postoperative tetanus, one should use, as recommended by Berard and Lumiere, a preventive injection before every surgical intervention, no matter what The dose in such cases will be from 10 to 20 c c according to the importance of the operation

In discussing this communication, Dr Phocas gave an account of six cases of tetanus encountered by him during his two years' experience with the war wounded In two cases, in spite of two injections, tetanus appeared eleven or twelve days after the last injection All cases developed without being incited by an operation, in other words, they were not postoperative, and Phocas has not had to ask himself the question whether tetanus serum should be injected before an operation If it had been done, he would not have avoided a single case of tetanus, so far as these six patients are concerned These considerations seem to afford the opponents of the serum some ground for persisting in their doubts as to the utility and the efficacy of the serum when used in man

But we must not lose sight of the fact that all these cases of tetanus developed slowly and only partially, and that they were mild, chronic and benign, all of them being retarded cases It cannot be denied that we are dealing here with a *new disease that* bears only a remote resemblance to the tetanus of the first period of the war Also diagnosis is sometimes difficult In all the cases the actual presence of the disease could not be established for several days after the appearance of the first symptoms, and Phocas is convinced that many other facts have passed unnoticed It would seem that one is authorized in establishing a relation of cause and effect between the systematic antitetanic injections in the service at the front and the appearance of this retarded and attenuated disease in the base hospitals Two injections are not always sufficient to protect the patient completely, but they are sufficient to arrest the course of the disease As for the question whether the serum should be injected before an operation, Phocas' statistics seem to show that this question is sometimes badly put, and that *it is not* so much a question as to whether those to be operated *on* should be reinjected, as it is whether all the wounded who arrive at the base hospitals should not be reinjected Phocas has almost reached the point of believing that this action should be taken, and that all the wounded coming from the front should be reinjected once, at least, if not several times, until the cicatrization of their wounds has been brought about

Meal Hours

I reported in my preceding letter a communication from Dr Bergonie to the Academie des sciences on the modification of meal hours At a recent meeting of the academy Dr. Amar declared with reference to this communication that the work ration of 3,200 calories proposed as a maximum by Bergonie is in reality insufficient, asserting that the work ration usually exceeded 4,000 calories He remarked that the meal hours proposed by Bergonie, namely, 7 30 a. m and 6 p m, if accepted as the hours for the two principal meals, might serve as well for the night workers and the noctambulists Amar concludes, however, that the custom of taking two *principal meals, one at noon and the other* toward 8 p m, supplemented by a light breakfast on rising, is justified from the standpoint of experimental hygiene and the loss of human energetics Supporting his view by a series of carefully conducted researches, he maintained that the carbohydrates are utilizable thirty minutes after their ingestion, which signifies an economy of 5 per cent. as regards expenditure of energy, whereas the nitrogenous foods are difficult to utilize for the first two hours after meals Under these circumstances, it would be advantageous, while continuing to work and to eat at our usual hours, to consume farinaceous foods and fruits in abundance, and to devote at least ninety minutes to each of our two principal meals

Gift from an American University

The University of Columbia, through the intermediation of M Jusserand, the French ambasador, has just presented to the municipality of Lyons the proceeds of a prize of $2 000, which it has bestowed on the work of Edouard Herriot mayor of Lyons, "Les oeuvres de guerre lyonnaises" This sum will constitute the first donation toward a Franco-American sanatorium founded by the municipality for the reception of tuberculous patients

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Marriages

Asst Surg Ovid Clemmons Foote, U S Navy, Norfolk, Va, to Miss Eleanor Potter of Chicago, in New York City, July 12

Arthur G Kessler, M D, Battle Lake, Minn., to Miss Agnes P Reinmiller of Pelican Rapids, Minn., July 25

William Franklin Temple, Jr, M D, Boston, to Miss Marguerite Mayberry of Pittsfield, Mass, July 10

Fred Romer Reed, M D, Detroit, Mich, to Miss Julia Davis of Rock Island, Ill, in Detroit, July 18

Philip Edward Marks, M D, Pittsburgh, to Miss Elizabeth Kennedy Toddie, Braddock, Pa, July 16

P A Surg Robert Earle Stoops, U S Navy, to Miss Ethel Louise Saunders of Cleveland, July 9

Homer Marlatt McIntire, M D, Eveleth, Minn, to Miss Eileen Matthews of Ashland, Wis, July 10

Homer McClelland Carter, M D, to Miss Eleanor Hardy Keller, both of Madison, Wis, July 16

Roy Alton Morter, M D, to Miss Jannette B Johnson, both of Kalamazoo, Mich, July 18

Norman Clyde Marvell, M D., to Miss Marguerite M Hogg, both of Baltimore, July 7

Nicholas Israel Fox, M D, Chicago, to Miss Evelyn Adele Hattis of Oak Park, Ill, July 5

Isaac Ivison Parsons, M D, to Miss Elizabeth G Hennessey, both of Media, Pa, recently

Algie Ray Shreffler, M D, St. Louis, to Miss Edna Hitterbrand of Henry, Ill, recently

Milton J Longsworth, M D, to Mrs Anna Beutelspacher, both of Lima, Ohio, July 13

Leo Joseph Wojczwnski, M D, to Miss Mary D Rzepski, both of Philadelphia, June 20

Deaths

William Beer Ewing, M D, Pittsburgh, University of Pittsburgh 1896, aged 51, a Fellow of the American Medical Association, professor of dermatology and syphilis in his alma mater, a member of the staff of St Francis, Allegheny General and the Children s hospitals Pittsburgh for several years president of the Pittsburgh Academy of Medicine and treasurer of the Allegheny County Medical Society, died at his home in Schenley Farms, Pittsburgh, July 17, from heart disease.

Darlington J Snyder, M D, Columbus Ohio, Columbus (Ohio) Medical College 1891, aged 74, a Fellow of the American Medical Association, assistant secretary and treasurer of the National Confederation of State Examining and Licensing Boards in 1910 for twenty-seven years principal of the Reynoldsburg (Ohio) Academy, died suddenly, July 15, from heart disease

Odillion B Weed, M D, Detroit College of Medicine and Surgery 1888, aged 65, a Fellow of the American Medical Association surgeon of the Thirty-Third Michigan Infantry, U S V., during the war with Spain and later a medical officer of the Forty-Second New York Infantry U S V with service in the Philippine Islands, died at his home, July 17

F G Marrero, M D, Covington La, Tulane University, New Orleans 1884 aged 62, formerly a member of the Louisiana State Medical Association for one term coroner of Jefferson Parish and for five terms mayor of Covington, died in the Presbyterian Hospital New Orleans July 13 from cerebral hemorrhage

Charles Young, M D, Newark N J College of Physicians and Surgeons in the City of New York 1866, aged 75 formerly a Fellow of the American Medical Association for many years a member of the staff of St Michael s St Barnabas and the Newark City hospitals, died at his home, July 14

Harry Joseph James, M D., Phoenix Ariz. University of Toronto 1907 a member of the Arizona Medical Association, vice president of the Anti Tuberculosis Society of Arizona and medical director of St. Luke s Home, Phoenix, died in that institution July 20 from nephritis

Harry Rayburn Johnson, M D., New Hope, Ala, University of Nashville Tenn 1887 aged 54 a member of the Medical Association of the State of Alabama, a member of the Madison County Medical Board also a druggist, died in a hotel in Huntsville, Ala., July 7 from dropsy

Frederick A. Rettig, M D., Chicago, Rush Medical College 1894, aged 48 a Fellow of the American Medical Association and president of the staff of Alexian Brothers Hospital with which he had been associated for twenty-five years, died at his home, July 21 from myocarditis

Thomas W Hurley, M D., Bentonville Ark., Memphis (Tenn.) Medical College 1855 aged 83, a member and once president of the Arkansas Medical Society, a surgeon in the Confederate Service, during the Civil War, died at the home of his son in Bentonville, July 15

Sigismund Edward Inda, M D., Buffalo, University of Buffalo N Y., 1913 aged 26, formerly a member of the Medical Society of the State of New York, was drowned July 18 when his automobile overturned in a shallow ravine near South Dayton N Y

Leland A. Moss, M D, McMillen Mich, Cincinnati College of Medicine and Surgery 1902 also a druggist aged 41, died at his home, July 7 from the effects of a gunshot wound of the head self-inflicted, it is believed, with suicidal intent, while despondent.

Guy Stewart Vinyard, M.D., Colorado Springs Colo, Denver and Gross Medical College, Denver 1903, aged 40, formerly a Fellow of the American Medical Association, a member of the Colorado State Medical Society, died at his home, July 15

Edward Barnwell Bangasser, M D., Buffalo, University of Buffalo 1913, aged 31 a member of the Medical Society of the State of New York, was drowned by the overturning of his automobile into a ditch, near South Dayton, N Y., July 18

James Louis Williamson, M D., Milwaukee, Wis, Northwestern University School Chicago 1881, aged 61 formerly a Fellow of the American Medical Association, a member of the Medical Society of the State of Wisconsin, died about July 16.

James Goravar Amerig Davies, M D, Dalton, N Y, Druidic University of Maine Lewiston, 1882, aged 79, a Fellow of the American Medical Association, died in Oakland, N Y, April 12 from heart disease

James B Maclin, M D, Shreveport La, Meharry Medical College, Nashville Tenn, 1887, aged 56, the first colored practitioner of medicine and dentistry in Shreveport, died in Mercy Sanitarium in that city, July 3

Edwin Nelson Mayberry, M D, South Weymouth Mass, University of Vermont Burlington 1882, aged 60, a Fellow of the American Medical Association, died at his home, July 14 from cerebral hemorrhage

John Francis Curlette, M D, Monticello N Y, New York University New York City 1889, aged 64, local surgeon of the New York Ontario & Western Railway, died at his home, July 14 from septicemia

Charles Henry Call, M D, Greeley, Colo, Harvard Medical School, 1881 aged 58, formerly a Fellow of the American Medical Association died at his home April 7, from an overdose of a narcotic

Harry V Lucas, M D, Louisville Ky, University of Louisville Ky 1880 aged 66 for many years a practitioner and druggist of Louisville, died at his home, July 14 from organic heart disease

Albert Eugene Greer, M D, Brownstown Ill Marion-Sims Medical College St Louis 1895, aged 49 a Fellow of the American Medical Association, died at his home, July 3, from pneumonia

Lucien F Bachelder, Rockland, Maine (license, Maine act of 1895) aged 81, a veteran of the Civil War, also a clergyman of the Methodist Episcopal Church, died at his home, July 10

Samuel Birkbeck, M D, Gratiot Wis, College of Physicians and Surgeons Keokuk Iowa, 1898 aged 50, a Fellow of the American Medical Association, died suddenly at his home July 3

Charles Miller Ginn, M D, Dayton Ohio Cleveland-Pulte Medical College Cleveland 1899 aged 41, a member of the staff of Miami Valley Hospital, died at his home July 13

George Elmer Bushnell, M D, Rochelle Ill, Hahnemann Medical College Chicago 1885 aged 52, formerly a Fellow of the American Medical Association, died at his home, July 17

Ira Walton Marstellar, M D, White Haven Pa, University of Vermont Burlington 1884 aged 58, for eighteen years school director, died at his home July 11, from kidney disease

Adolph E Loberg, M D., Minneapolis, University of Minnesota Minneapolis 1901, aged 41 a Fellow of the American Medical Association, died at his home July 18 from pneumonia

Hannah Leah Nichols Schmalling, M D, Fulton, Ill University of Michigan Ann Arbor 1885, aged 54 a Fellow of the American Medical Association, died at her home, July 14

Isaac Seldon Graves, M D, Jermyn Pa, New York University New York City, 1888, aged 57 a Fellow of the American Medical Association, died at his home, July 16

Charles S Castellaw, M D, Fort Worth Tex., Georgia College of Eclectic Medicine and Surgery Atlanta, 1903, aged 35, died in a sanatorium in Fort Worth, July 14

Oscar Henry Barthel, M D, Pocahontas Iowa, Rush Medical College 1885 aged 60 a member of the Iowa State Medical Society, died at his home July 17

Julius A. Roeder, M D., Omaha Medical College, 1892, aged 68 also a druggist died at the home of his mother in Omaha, July 13 from heart disease

Ferre Joel Walker, M D, Maquon Ill, College of Physicians and Surgeons Keokuk Ia, 1896, aged 51, died in Brunswick, Mo April 13

William Allen Dumbauld, M D., Carterville, Mo, Cincinnati College of Medicine and Surgery 1845, aged 70, died at his home about July 9

Richard Floyd Worth, M D, San Benito Tex, Chicago Homeopathic Medical College 1888, aged 53, died at his home, about July 23

Walter J Saunders, M D., Wyoming Pa., Baltimore University 1891, aged 62, died at his home in West Wyoming, July 15

Correspondence

THE USE OF PAPER AS A SURGICAL DRESSING AND BANDAGE

To the Editor —During the past six months we have been experimenting at the New York Orthopaedic Dispensary and Hospital with the use of paper as a surgical dressing, and our experiments there warrant me in making this preliminary report of its use in the hope that other surgeons may try it, that further experience may prove it to be a substitute for gauze, muslin, etc, and that its use will effect a great economy in the expense of our surgical work

Among our experiments we have used sterilized newspapers in the dressing of clean wounds, and have found them perfectly satisfactory, causing no irritation and no disturbance whatever We have also used various forms of paper, such as those used in making towels, toilet paper, table cloths, napkins, etc., in the dressing of clean wounds, and have had no trouble whatever We have used sterilized newspapers also in the dressing of suppurating wounds, but it is believed doubtful if these are sufficiently absorbent for this purpose It is believed, however, that further study from the manufacturer's standpoint will produce a paper sufficiently absorbent for suppurating wounds We have used sterilized newspapers also as padding under plaster, with considerable saving, as cotton, lint and felt are very expensive In the matter of bandages, there is not the slightest difficulty, as they can be made pliable and with sufficient tensile strength to be used for almost any purpose for which an ordinary bandage is used

No attempt has been made to use paper as packing, as thus far we have found no paper that would not become disintegrated

Russell A Hibbs, M D, New York.

UNNECESSARY OPERATIONS

To the Editor —Will you permit a humble medical and surgical practitioner, whose chief means of keeping even at the rear of the medical procession is through reading the better medical journals, to express her opinion as to one of the reasons why unnecessary operations are advised so frequently —fear of being considered out of date by fellow practitioners, and a conscientious desire to do all that may be done for the relief of patients Had we the courage of our convictions, many of us of humble attainments would decline to operate or advise operation in debatable cases, but our literature is so emphatic that we fear to obtrude our opinion

The remedy for this lies with our investigators, who should be less hasty in writing conclusions that may have to be revised

Appendectomy for indefinite symptoms, tonsillectomy for remote affections, and intraspinal and intraventricular medication are mentioned merely to show how bewildered an ordinary surgeon may become on some of the debatable phases of these operations Hasty publication by eminent authorities of conclusions drawn from incomplete data is the cause of many absurd and tragic operations

Jessie C. Farmer, M D, Felton, Calif

SHORTAGE OF SYNTHETIC DRUGS

To the Editor —To facilitate the manufacture of synthetic drugs in this country and thus to relieve the shortage and reduce the exorbitant prices which have resulted from the war, the National Research Council has established a committee on synthetic drugs

Having been asked to assume the chairmanship of the committee, I have selected, as my associates, M Gomberg, of the University of Michigan, Roger Adams, of the University of Illinois, and W A Puckner, secretary of the Council on Pharmacy and Chemistry

It being the purpose of the committee to aid in relieving the present shortage of synthetic drugs, its efforts will extend in two main directions In the first place, to assemble reliable information as to which drugs are really hard to obtain or, if obtainable, are sold at an exorbitant price. In the second place, to organize research work, especially in universities, and to assist manufacturers in working out the problems of the production, on a large scale, of synthetic drugs of a high degree of purity without great delay

Physicians are cordially invited to notify W A. Puckner, 535 North Deabon Street, Chicago, of any difficulty they may find in procuring important synthetic drugs It is essential that the committee obtain this information, because certain firms have been asserting that they can supply synthetics which, according to the reports of physicians and of pharmacists, are exceedingly scarce, are sold at an outrageous price, or are altogether unobtainable. In other words, the committee would like to have information from physicians and pharmacists, and not from self-interested dealers or agents

Julius Stieglitz, Chicago

[Comment —The medical profession and the American manufacturers are to be congratulated that Professor Stieglitz, head of the Department of Chemistry of the University of Chicago, and one of the foremost organic chemists of the country, has assumed the chairmanship of this important committee — a committee which may be the means of permanently freeing us from dependence on Germany for many of our synthetic drugs In order that the committee's energies may be wisely conserved, physicians and pharmacists should report any shortage of the synthetic drugs which they deem most important and which in the past have been imported —Ed]

THE NEURASTHENIC AS A SOLDIER

To the Editor —In a note in The Journal (July 28, 1917, p 290) Sir William Osler warns examiners of recruits against certain defects which will render men unfit for service in the field, and mentions "the neurasthenic" This reminds me of facts also worthy of recognition in connection with the examination of recruits which deserve to supplement in a measure the caution given by Dr Osler A certain number of men of unstable brain and nervous system will present themselves who, while all surface indications seem favorable, still are especially apt, whenever brought under severe or strenuous conditions, to suffer a breakdown or collapse of brain and nervous system

Many of the neurasthenics mentioned by Dr Osler are also "psychasthenics" By this I mean persons lacking in power of adaptation to severe external conditions, such as necessarily occur in connection with active military service

It is especially important to know the previous history of such men, especially from a neuropsychopathic standpoint, and to inquire carefully into any sickness or disability that may have affected them. They should in particular give an account of any sojourn in any hospital or medical institution, and supply the names of physicians who have advised or treated them in the past.

Individuals of the "moron" type often present an entirely satisfactory physical appearance, and require tests which will develop mental incapacity or deficiencies

In these categories there are many young men coming from sedentary occupations who might be capable of certain forms of service in the home camps, as Sir William Osler suggests With the discipline and outdoor life, these men will improve both mentally and physically, and will even render brilliant service after passing successfully through the "try out" But they ought never to be sent to the front

In this connection, it is worthy of note that an important movement has been inaugurated by the American Neurological and the American Medico-Psychological Associations for establishing neuropsychopathic units to supplement the work of base hospitals by especial care and treatment of the neuroses and psychoses Dr Pearce Bailey of New York has charge of this work, and has appointed men in each state of the Union to cooperate I understand that two or three complete units of this class have already been formed and are in readiness to take the field Dr Bailey's address is 50 Union Square, New York

Richard Dewey, M D, Wauwatosa, Wis

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed Every letter must contain the writer s name and address, but these will be omitted on request

SIGNS OF ADDICTION TO OPIUM

To the Editor —During this stage of China s fight against opium, our hospital is often called on by the officials of the district to express its opinion as to whether or not a certain person is a user of opium or its derivatives Do you know of any tests which might be of use to us in collecting this evidence?

G L. Hagman M D,
Nantungchow Christian Hospital Nantungchow, Kiangsu, China

Answer.—The confirmed opium eater usually has a sallow, pasty complexion, and is emaciated He is restless, irritable and unable to remain quiet for any very long period of time The mental condition except when he is directly under the influence of the drug is usually one of depression The pupils, except when under the direct influence of the drug, are usually dilated, but sometimes unequally Pseudoneuralgic pains are common and notably gastric intestinal symptoms, as gastralgia, vomiting and diarrhea, especially if the drug is withheld The skin is wrinkled dry and harsh, and may show numerous needle scars and abscesses in those addicted to the hypodermic use of the drug In most instances the diagnosis must be made by a careful investigation of the patient s habits and history

CLOTHING ALLOWANCE FOR BRITISH MEDICAL RESERVE OFFICERS

To the Editor—I do not see why the War Department does not give the physician who is commissioned an officer in the Medical Reserve Corps an allowance to cover his initial outfit I know that when England called on her physicians at the declaration of war each man commissioned was given £50 for his outfit Please publish this so I can see the opinions of other men members of the Medical Reserve Corps. Kindly omit my name and address

M H L.

Answer.—Although the writer — a member of the Medical Reserve Corps — asks to have his name omitted we publish his letter because it calls attention to a fact that should be known, namely, that in Great Britain the temporary medical officers corresponding to our Medical Reserve Corps officers, do receive an allowance, but it is £30 — approximately $150 — not £50 Incidentally the doctor also is allowed a gratuity of £60, or approximately $300 at the termination of his term of service, *if it has been satisfactory*

'SHUT YOUR MOUTH AND SAVE YOUR LIFE'

To the Editor —The special article on Medical Mobilization and the War" by Sir William Osler Bart. refers to a certain pamphlet by Kit Catlin one I would be pleased to have, as the title "Shut Your Mouth and Save Your Life appeals to me as a good one. I should be pleased to know where it can be obtained If you can supply me with it or give me the name of its publisher I should be grateful to you

D B Buhler M.D Pretty Prairie Kan.

Answer.—The book referred to is

Catlin, George Breath of Life or Malrespiration and its Effects Upon the Enjoyments and Life of Man New York, 1861 76 pp John Wiley & Sons

The English edition was published under the title

Shut Your Mouth and Save Your Life London Trubner & Co 1869

The book is out of print, but can probably be obtained second-hand

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Protection from the Pseudoscientist —The government has at last begun to realize that it is its duty to protect the masses from the medical quack. Your speaker is of the opinion that the masses need equal protection from the irresponsible litterateur or politician who makes it his business to spread the seed of fanaticism and emotionalism by a claim of knowledge of biology which he does not possess The cure for this form of pernicious mischief is the spread of knowledge of the exact sciences which will put an end to the business of the pseudoscientist —Dr Jacques Loeb, *Science*, Jan. 26 1917

Book Notices

Rest Suggestion and Other Therapeutic Measures in Nervous and Mental Diseases By Francis X Dercum A M M D Ph D Professor of Nervous and Mental Diseases in the Jefferson Medical College Philadelphia Second Edition Cloth Price $3 50 net Pp 395 Philadelphia P Blakiston's Son & Co, 1917

As the author states in the preface, this work is a reprint of Volume VIII of Solis-Cohen's "System of Physiologic Therapeutics," largely rewritten and revised It is an epitome of the author's ideas of the neuroses and psychoses and their treatment In the main, his ideas are sound Here and there one might call them old-fashioned But especially in the sections on treatment will the reader find a rich fund of common-sense directions obviously based on wide experience Not all neurologists would agree with the author in the great preponderance he gives to neurasthenia as a "fatigue neurosis" compared with his scant consideration of psychasthenia, but when it comes to practical advice as to carrying out the rest cure and the management of nervous patients there can be no difference of opinion The author knows what he is talking about The book contains many hints or pointers familiar to neurologists but seldom seen in print Finally there is a consideration of suggestion, hypnotism, mesmerism, Christian Science etc., and some twenty pages devoted to a criticism of psychanalysis The sections on hypnotism and the like are largely of historical interest, though the author emphasizes his radical opposition to hypnotism as a therapeutic measure The criticism of psychanalysis is a fair statement of the origin of this 'cult," as the author calls it, and of its weaknesses, inconsistencies and possible dangers His attitude may be said to be that of an alien enemy

Notes on Military Orthopedics. By Colonel Robert Jones, C.B, Inspector of Military Orthopaedics Army Medical Service. With an Introductory Note by Surgeon General Sir Alfred Keogh, G C.B, Director General Army Medical Service. Cloth Price, $1 25 Pp 132, with 128 illustrations New York Cassell & Co Ltd, 1917

This book is composed of a series of articles which appeared in the *British Medical Journal* during 1916 Col Robert Jones is the leading orthopedic surgeon of England, and, it will be remembered as the head of the unit of twenty orthopedic surgeons who recently went from this country to do war work in England

There is an introductory note by Surgeon-General Keogh, who calls attention to the importance of the after-treatment of military surgical cases, in a way making the disabled soldiers an asset rather than a permanent liability to the community

The chapters concern (1) *positions of election for ankylosis* following gunshot injuries of joints, (2) suture of nerves and alternative methods of treatment by transplantation of tendon, (3) the soldier's foot, and the treatment of common deformities of the foot, (4) malunited and ununited fractures, (5) transplantation of bone, and some uses of the bone graft, (6) disabilities of the knee-joint and (7) the mechanical treatment of fractures under war conditions By far the most interesting and important chapter for the ordinary practitioner and for the medical officer in general is the third chapter This is very practical and easily understood Particularly noteworthy is the statement of the qualities of a good marching boot, which follows

> A good marching boot should, therefore, leave the foot free to adapt itself to altering conditions of balance and strain
>
> 1 The boot should fit comfortably and closely round the heel and ankle so as to avoid lifting of the heel in the boot, which results in chafing ending in a blister of the heel.
>
> 2 To save the arch from giving way and to avoid flat foot the heel of the boot should be slightly higher on the inner side than on the outer
>
> 3 The inner side of the boot should be straight right up to he tip of the big toe—that is to say the inner sides of the two boots should be parallel to each other all the way along to the great toe There should be no trace of pointedness for pointedness tends to produce hallux valgus and helps to cause flat foot.
>
> 4 The sole of the boot inside should be as broad as the foot with the weight of the body on it. In the case of a soldier it should be as broad as the foot is when carrying the weight of the soldier in full marching order—that is to say the weight of the man himself his pack and all his accoutrements.

5 The upper of the boot should not compress the fore part of the foot in any way The toecap should be stiff and deep enough to clear the toes and allow free movement inside the boot. This stiffening should run back on the inner side of the boot to a point behind the metatarsophalangeal joint of the great toe.

6 The boot should be long enough to allow the foot to extend to its full length when the soldier is carrying his pack and all his accouterments

These last points, dealing with freedom of movement of the fore part of the foot, are essential to the full development of the small muscles of the foot on which the soldier's endurance and marching powers depend to so large an extent.

Corns do not develop in a foot encased in a boot which allows free play to the fore part of the foot The regimental chiropodist is a most valuable asset, but his existence is, *ipso facto*, a confession that the fit of the men's boots is not all it might and ought to be The man should not be allowed to judge of the tightness of his boot when his foot is cool On the contrary, boots should be served out when men have come in from a long route march, and their feet are engorged with blood, and therefore at their largest. If this were done, interference with the circulation of the foot by the boot would less often occur When a foot swells after a march, the swelling is practically all in the fore part, not round the heel To serve out boots, therefore, after a route march would not prevent a man from choosing a pair which fitted properly round the heel and ankle.

Acute Poliomyelitis By George Draper, M D, Associate in Medicine, College of Physicians and Surgeons, Columbia University With a Foreword by Simon Flexner Cloth Price, $1 50 net. Pp 149, with 19 illustrations Philadelphia P Blakiston's Son & Co, 1917

A forword by Dr Simon Flexner recommends Draper's book as a practical guide for the diagnosis, care and specific treatment of epidemic poliomyelitis Dr Draper has been engaged in poliomyelitis work for several years, and is therefore qualified to speak as one who has practical knowledge of the subject In the first chapter the author gives a history of the disease and then considers in regular order etiology, epidemiology, experimental poliomyelitis, pathology, classification of the types of poliomyelitis, symptoms, clinical pathology, the paralyses, prognosis and treatment. The last part of the book is devoted to case reports with discussion Some of this material appeared in Dr Draper's recent extensive article in The Journal As to the new organism recently described, the author says

> Whether or not the polymorphous organism described by Mathers, Kosenow, and others and having affinities with the streptococcus is the same biological entity as that of Flexner and Noguchi is a question which the accumulative weight of scientific observation and experiment will determine At the present writing adequate proof of a relationship has not been brought

The book can be especially recommended to those physicians who feel the necessity of making a special study of this disease

Rational Sex Ethics A Physiological and Psychological Study of the Sex Lives of Normal Men and Women, with Suggestions for a Rational Sex Hygiene By W F Robie, A B, M D, Superintendent Pine Terrace, Baldwinville, Mass Cloth Price, $3 50 net Pp 356 Boston Richard G Badger, 1916

In the present flood of literature on sex topics, it is refreshing to find an author who writes from the point of view of the general practitioner and who has endeavored to secure his material from normal persons rather than from the abnormal, the eccentric or the criminal classes Dr Robie seeks to discuss some of the perplexing problems of sex relations in a common sense way without obscuring his meaning by the complex terminology and fantastic theories of many writers in this field He is even able to discuss psychanalysis dispassionately and, without going to the extremes of the freudian enthusiasts, to recognize the value of many of Freud's theories The numerous case histories given are well selected as illustrations, and in many cases will be recognized as analogous to those encountered by most practicing physicians While not intended to be either complete or final, Dr Robie's book can hardly be overlooked by those interested in this subject

Some Personal Recollections of Dr Janeway By James Bayard Clark. Cloth Price, $1 Pp 36, with 1 illustration New York C P Putnam's Sons, 1917

In this little book the author, a former assistant of Dr Janeway, gives some personal incidents and memories of the life of the noted pathologist and sanitarian who died in 1911 The memoir will be of decided interest to those who knew Dr Janeway

Medicolegal

Classification of Prostatitis Regardless of How Caused

(*Bartallotte vs Commercial Casualty Insurance Co (N Y), 163 N Y Supp 95*)

The Supreme Court of New York, Appellate Term, First Department, reverses a judgment entered in favor of the plaintiff who, having had prostatitis, sought to recover on a health insurance policy which provided "The insurance hereunder shall not cover any disability sustained by the insured which shall result directly or indirectly from venereal diseases, childbirth, or any disease of the generative organs or their appendages, or any disease or injury, fatal or nonfatal, not common to both sexes, anything herein to the contrary notwithstanding" The court says that the defense was that the plaintiff's disability was due to an illness not within the terms of the policy, being a disease of a generative organ (the prostate gland) not common to both sexes The contention of the plaintiff was that the disease of the prostate gland was due primarily to a germ infection of the nose and throat, and therefore came within the general terms of the policy, and not within the exemption set forth in the provision quoted above. This view, apparently adopted by the trial judge in directing judgment for the plaintiff, was not supported by the proof The evidence was uncontradicted that, whatever its remote cause, the immediate illness which caused the disability of the assured was prostatitis, a disease of the prostate gland, a generative organ, not common to both sexes The physician whose preliminary report was filed by the plaintiff with the defendant testified that the plaintiff had acute prostatitis, and that he had a high fever and painful symptoms, a condition due to urinary trouble On further examination, the physician stated that he had been told that, a week before he examined him, the plaintiff had been suffering from the nose and throat, that at that time, on examining the plaintiff's nose and throat, he found symptoms of follicular tonsillitis, and rhinitis in the nose, and stated further "My opinion was that this infection was a secondary infection from throat trouble, and it traveled down to the gland" Under the terms of the policy it was immaterial what caused the prostatitis, whether the causes were external or internal, hereditary, or an incident of old age or early dissipation The exemption was as to disability resulting from such diseases The motion made by defendant's counsel at the close of the case to dismiss the complaint on the ground that the plaintiff had failed to make out a cause of action should have been granted, the proof being conclusive that the plaintiff's disability was due to an illness for which, under the policy, the plaintiff had no right to recovery

Insufficient Evidence of Malpractice in Treatment of Fracture

(*Snearly vs McCarthy (Ia), 161 N W R 108*)

The Supreme Court of Iowa affirms a judgment in favor of the defendant, who was sued for damages for alleged malpractice in the treatment of a simple oblique fracture of the femur of the plaintiff's right leg The court says that while the method of treatment adopted by the defendant was fully pointed out and described in the testimony, no witness was called by the plaintiff to show that this was not regarded as proper practice by the profession in the locality where the defendant practiced If there was any such testimony, it was to be inferred from what the defendant did, or failed to do, viewed from the standpoint of a nonexpert, or deduced from what some of the medical experts said while on the stand As a general rule, it may be safely affirmed that in matter requiring special skill and training it is not permissible for laymen as nonexperts to set up any artificial standards as to methods of treatment This is especially true in surgery, for in that field neither courts nor juries are presumed to know more regarding methods of treatment than ordinary laymen, and that is practically nothing After hearing the theories, deductions, and scientific facts from experts, both judge and jury must often oppose one set of opinions against another and determine which is the more reasonable but they cannot, without some guide, presume to fix any standard on which to determine the correctness of any kind of treatment It was claimed that the defendant was negligent in not using the Roentgen ray before he did anything toward reducing the fracture but the testimony showed that it is entirely optional with physicians and surgeons whether to use the Roentgen ray or not in the first instance The purpose, of course, in using it is to diagnose the case, and if this may properly be done without the use of this modern appliance, then no negligence is to be inferred from failure to use it Moreover, the record here showed that the nature of the fracture was discovered when the defendant was first called, hence a Roentgen-ray examination would have added nothing There was a nonunion of the bones for some reason which the experts failed to explain except to say that nature fails sometimes to make the necessary union, without any fault being attributed to the operator This theory was fortified by the further fact that, after the plaintiff had been taken to Chicago and placed in the hands of one of the most skilful operators in the country he, too had to resort to three operations before he secured a union and the shortening of the limb resulted after he took the case in charge. It did not appear that this final shortening of the limb was due to anything which the defendant did or neglected to do It might be true, of course, that he should be held liable for the delayed union or for pain and suffering and loss of time, although not responsible for the permanent shortening of the limb, but to hold him liable for this, it must be shown that these things resulted proximately from his lack of care in handling the case As the plaintiff selected the grounds of negligence on which he would stand stating them with great particularity, and nowhere claimed that the defendant failed to give him the necessary constitutional treatment to aid nature in throwing out the callous or bony substance which cements the ends of broken bones together, that proposition must be eliminated from the case. Nor after the plaintiff had been permitted to show that some years before he had suffered another fracture—one of the bones below the knee was there error in denying him the right to show how long he was disabled by reason of that other fracture, as the fractures were not similar in kind or nature

Consideration for Promise to Pay for Services for Another

(Baumhauer v McGill (Ala.), 73 So R 753)

The Court of Appeals of Alabama, on account of what it holds was an erroneous instruction given to the jury at the instance of the defendant, reverses a judgment that was rendered in his favor in this action on a promise to pay for medical services for another The instruction read Gentlemen of the jury, you must be reasonably satisfied from the evidence in this case that J I McGill promised to pay Dr Baumhauer for the services rendered for Austin Sims in this case, and that the promise grew out of a consideration moving to said McGill, otherwise you must find for the defendant." The court says that the plaintiff based his right of recovery on a contract claimed to have been made by him directly with the defendant, whereby the defendant contracted for him to render medical services to one Austin Sims the beneficiary of the defendant's bounty In this aspect of the case, it was not, as charged, a sine qua non or indispensable condition to recovery that the promise grew out of a consideration moving to said McGill', it was sufficient though the consideration did not move" or insure to the benefit of McGill, but for the benefit of a party not privy to the contract. It is thus expressed in 1 Elliott on Contracts Section 252 "While the consideration must move from the promisee at the instance of the promisor it is not necessary that the promisor be the recipient of it. It need not pass directly to the latter but under the prevailing rule may move from the promise to a third person at the promisor s request." The detriment to the promisee (Dr Baumhauer) in the performance of services and loss of time was a sufficiently valuable consideration In view of the erroneous instruction, the judgment for the defendant must be reversed and the cause remanded. for another trial

Society Proceedings

COMING MEETINGS

Michigan State Medical Society, Battle Creek, Sept. 4-6.

AMERICAN ASSOCIATION OF ANESTHETISTS

Fifth Annual Meeting held in New York June 2, 1917

Dr F W Nagle, Vice President, in the Chair

Officers Elected

The following officers were elected for the ensuing year president F W Nagle, Montreal, vice presidents, Albert H Miller Providence, R I, Isabella C Herb, Chicago, and Freeman Allen Boston, secretary-treasurer, James T Gwathmey, New York

A Comparative Study of Blood Pressure During Anesthesia

Dr Albert H Miller, Providence, R I A comparative study of blood pressure was made under nitrous oxid-oxygen anesthesia Anesthetic dosage and vapor tensions are comparatively stable but occasional instances of personal susceptibility and recalcitrance were noted The dosage required to maintain a definite degree of anesthesia increases in proportion to the severity of the operative procedure The requisite dosage for anesthesia during shock is greatly diminished but this diminution of dosage bears no direct relation to the blood pressure Excitement and examination, preliminary to operation increase blood pressure Cyanosis, retching and vomiting during anesthesia all cause an immediate rise of from 10 to 30 mm The systolic pressure is increased in the lithotomy position Overdosage required by recalcitrant patients does not affect blood pressure materially, whereas overdosage necessitated by operative trauma makes for shock McKesson's rule is of the greatest practical value He characterizes typical shock by a diastolic pressure of 60 mm or less a pulse pressure of 20 and a pulse rate above 120 If this state is allowed to continue half an hour the patient will not recover Serious operations under local anesthesia are regularly attended with wide but transient variations in both systolic and diastolic pressure Spinal anesthesia is attended by falls in both pressures of alarming proportions

Effects of Anesthesia on the Blood Volume and Its Relation to the Production of Shock

Dr. Albert A Epstein, New York Most authorities now recognize that the most striking pathologic feature of shock is the reduction of the total quantity of blood in the body Anesthesia plays an important role in the production of shock because of itself, it causes a prompt and considerable reduction in the blood volume. While pursuing researches on the blood sugar changes in experimental diabetes I was forced to the conclusion that the hyperglycemia observed under operative conditions was to some extent due to a concentration of the blood caused by the reduction of the blood volume Animal experiments were made on forty-one cats under anesthesia some with, others without operative interference Susceptible animals show a prompt reaction in the blood volume, while in refractory animals the changes in blood volume were insignificant. Experiments were performed to show that this blood volume reduction is not due to concentration of cellular content. While increased salivation and mucous secretion as well as sweating may in a measure, account for some of the reduction in blood volume under anesthesia, it seems probable that abstraction of the fluid by the tissues from the blood, plays the major part in the production of the phenomenon observed The occurrence of acidosis during anesthesia and the mobilization of lipoids favor development of a condition in the tissues which renders them hydrophilic, that is, capable of absorbing fluid The fact that refractory animals show the slightest reaction would rather rule out acapnia as an etiologic factor The reduction in blood volume, in animals susceptible to anesthesia, occurs promptly and is slightly increased by operation Mere prolongation of anesthesia does not materially affect the reaction Recovery from the anesthesia is accompanied by a return of the blood volume to normal

Effects of Ether Anesthesia and of Visceral Trauma, as Shown by Vasomotor and Blood Pressure Changes

Dr. Walden E Muns, Columbia, Mo In a series of experiments on dogs it was found that (1) ordinary third stage ether anesthesia prolonged beyond one hour results in marked vasodilatation of peripheral vessels, (2) there is a direct relationship between the condition of the vasomotor control and the blood pressure, and (3) the end-result of ether depression is loss of vasomotor function, and death The normal tone and resistance in the arteries were altogether or partly destroyed in all cases, and the blood pressure lowering effect of this one factor, obtaining throughout all of the periphery, was tremendous It is evident that as half the cases showed a decided and fatal fall in blood pressure, while the other half recorded a decided maintenance of pressure to the time of death, the normal compensatory reaction of the heart to the blood pressure lowering tendency of the peripheral dilatation must be taken into consideration While the heart beat did not increase in any instance in rate, there was a decided increase of ventricular output, an increase great enough to overcome the hypostatic effect of the peripheral dilatation If the heart fails to show this compensatory reaction, because of organic disease, or too early response of the nervous system to the effect of the anesthetic, the blood pressure must fall The results of a series of intestinal trauma experiments showed that (1) manipulation of the intestine brings about a vasoconstriction, and (2) there is a relationship between this vasoconstriction and the blood pressure Thus it is apparent, in the light of these results, that an anesthetic, such as ether, and an irritation of the abdominal viscera, produce two different kinds of stimuli The anesthetic first excites and then depresses, the depression being its essential and marked effect, and if too prolonged it results in total functional incapacity The effect of visceral irritation is wholly excitatory, being mechanical When this irritation becomes too severe or is continued too long, the summated excitant stimuli lead to overactivity and fatigue, and the end of fatigue is exhaustion Thus both the anesthetic and the visceral injures may lead to complete depression or complete exhaustion, respectively Either means complete functional incapacity When sensory stimuli and the anesthetic are exhibited together, there is one period when the excitation from the surgical technic and the depression from the drug are pitted against each other to the good of the patient If the anesthetic and its neutralizing irritation are continued too long, or are of undue severity, the two antagonists become allies in effect and bring about a much quicker collapse Thus the syndrome known as postoperative shock may be considered a combination of the effects of excitation and depression, and varies directly with the interaction of these two factors If the prevention of postoperative shock depends on a proper balance between the two types of stimuli, then both surgeon and anesthetist should quite properly understand such relationship and so govern the interaction of the stimuli that they will not be too severe, too long continued or too out of balance It is also obvious that postoperative ether depression must be handled in a manner different from exhaustion from sensory shock.

DISCUSSION

Dr S J Meltzer, New York Undoubtedly there is something in Henderson's contention that acapnia produces shock and that rebreathing is a proper form of treatment. But not all physiologists accept his views, and I question whether the decreased carbon dioxid content causes shock or shock causes the decreased carbon dioxid content Similarly, it would be difficult to determine whether the loss of blood volume causes shock or shock causes the decreased blood volume With regard to recovery following low blood pressure, systolic or diastolic, in experiments on animals I have found that irrespective of pressures as low as 20 systolic, if respiration could be maintained, all animals recovered Life is, after all, dependent on the integrity of respiration and circulation, but the latter will withstand more variation than the former, in this connection it must always be remembered that ether paralyzes the peripheral nerve centers, and respiration is much less than normal during anesthesia Animals will recover from nine or even thirty-six hours of anesthesia, if respiration is sufficiently well maintained The control of this one factor so important in the preservation of life assists in controlling the other

Dr James T Gwathmey, New York In working with one of our surgeons, it has been my custom to use saline hypodermoclysis at the beginning of each operative procedure that will last an hour or more. This preliminary hypodermoclysis enables the surgeon to obviate the occurrence of shock, and 95 per cent of the patients so handled come off the operating table with a pulse of 72, normal respiration, and in a most favorable condition for recovery With regard to the rôle of the anesthesia in precipitating acidosis Series of guinea-pigs have been anesthetized with ether-air and ether-oxygen, some receiving preliminary sodium bicarbonate alkalinization Those pigs not receiving the sodium bicarbonate were all acidosed, whereas those which received the sodium bicarbonate showed normal or raised alkalinity of the blood Further, pigs anesthetized with ether-oxygen showed a higher percentage of alkalinity than those anesthetized with ether-air

Dr. E I McKesson, Toledo, Ohio In regard to the question of cardiac compensation, I have seen a number of cases in which the systolic blood pressure has been reduced 40, 50 or 60 mm for a few moments, and the patients recovered, but when extremely low pressures have persisted for from twenty to thirty minutes, the longer they continued the less likely was the patient's recovery These patients may not die for two or three days, but they do die. They seem unable to recover cardiac tone When diastolic blood pressure is reduced, but the systolic pressure is maintained at practically the normal, we have a cardiac compensation which saves the life of the patient The heart moves a larger volume of blood at each stroke, and thus sustains systolic pressure The double pressure maintains circulation, and saves the patient, even though the diastolic pressure, which is the measure of the hypotonus, has indicated that the patient is approaching, but has not yet reached the stage of surgical shock. When the heart from organic disease, severe strain, infection or rapid action has been worn out, or worn to the point at which it will no longer compensate, we have a crisis in which the patient is apt to go into surgical shock and not recover It may take several days before the patient will finally succumb to heart exhaustion

Anesthesia in Orthopedic Surgery

Dr. Walter G Elmer, Philadelphia In orthopedic surgery, whether the operation is to be of short or long duration, we keep our patients very lightly anesthetized The anesthetic is not continued for the application of the plaster of Paris dressing Thus a double osteotomy for knockknee requires not more than six minutes of anesthesia and operating, while the plaster work lasts half an hour, but the child receives no ether during this period, and on account of this discreet use of anesthesia, we almost never see any of our little patients go into a state of shock Anesthesia, however deep, does not block subconscious pain In weak and delicate children a slight amount of conscious pain may act as a stimulant, whereas severe pain, necessarily inflicted under anesthesia, combined with the effects of profound anesthesia, may lead to collapse Children with tuberculosis of the spine on whom a bone grafting operation is to be done are hazardous risks These children, while conscious and in control of their voluntary muscles, are able to protect themselves from harm while being handled, but when relaxed and unconscious under ether, this power of self-protection is lost The child's body is limp and unresisting Care in handling is of the utmost importance, as an abscess may be ruptured at the seat of the disease, causing sudden or ultimate death Even the spine itself may buckle and be broken. These children should be handled as carefully as though they were made of fragile glass, and from the time the anesthetic is started, they should be held motionless on a rigid support which fixes the spine from the head to the pelvis

DISCUSSION

Dr John R Worley, Dallas Texas In view of the damage that may result from buckling of the spine under the relaxation of even light ether anesthesia the question arises as to whether nitrous oxid oxygen anesthesia is not preferable for orthopedic surgery While supposedly contraindicated in young children specialists in anesthesia are finding nitrous oxid-oxygen increasingly available even in infants I have seen a number of children under a few weeks of age kept under perfect nitrous oxid oxygen anesthesia for orthopedic surgery and other prolonged operations, without any untoward consequences

Vascular Reflexes with Various Tensions of Ether Vapor

Dr Frank C Mann, Rochester Minn In general the physiologic phenomena occurring under ether were found to be remarkably constant at the same tension in different dogs While the effects of different tensions on blood pressure the vascular reflexes respiration and the respiratory reflexes were not always progressive or absolutely constant yet there were certain narrow limits of tension within which certain changes always occurred With a more accurately calibrated apparatus (than the one experimented with) I believe all the reflexes will be found to be proportionate to the anesthetic tension used It was found that the lowest tension compatible with operative work on the dog was approximately 36 The optimum tensions for operative work are probably between 38 and 45 While blood pressure and respiration may both be depressed greatly it seems impossible to kill an animal with any tension within these limits provided time is not allowed to become a factor When the tension is increased above 48 the animal becomes profoundly anesthetized and respiration is liable to fail and blood pressure to fall to a very low level Tensions above 60 are fatal for the dog The corneal reflex does not persist at tensions above 45 Blood pressure may remain practically the same or be successively slightly decreased at each increase of tension up to 48 It is always greatly decreased by tensions at or over 50 It reaches zero under tensions between 50 and 60 The pressor vascular reflex produced by stimulation of the central end of the vagus is greatest at tensions between 36 and 45 It is decreased under tensions above 45 although a well marked rise usually occurs under all tensions up to 48. It is either absent or only barely perceptible at a tension of 50 and rarely present at all above this tension The pressor vascular reflex produced by stimulation of the central end of the sciatic is depressed by all tension above 45 and does not persist at tensions above 50 The pressor reflex of the sciatic seems to be depressed more greatly by increased tension than that of the vagus In the instances in which it was possible to study the depressor reflex it appeared to parallel quite closely the pressor reflex in the same nerve under the same tensions although it did not persist under quite as high tensions Respiration usually ceases under a slightly lower tension than the pressor vascular reflex of the vagus disappears although either one may fail slightly before the other

DISCUSSION

Dr. F W Nagle, Montreal Clinically I have noted the same difference in the calibration of the anesthetometer that Dr Mann noted in comparisons of tensions with the gas balance In using the Connell apparatus during the past year I have utilized pressures from 50 to 60 the lower pressure providing an efficient anesthesia only for children or very weak patients

Dr. S J Meltzer, New York While it has been stated that the same tension of ether in all individuals produces the same effects it must be understood that, no matter how accurately an apparatus has been made animals and persons vary in their susceptibility to anesthetics and consequently the biologic element in percentage methods of anesthesia remains variable and occasionally disconcerting The apparatus is reliable enough but the individual reaction remains unstable. Thus tensions and pressures can only be approximated in relation to their usual results

Dr B Van Hoosen, Chicago Dr Mann's investigations offer a scientific explanation why ether and chloroform, following scopolamin-morphin narcosis should never be pushed to the point of abolishing reflexes Should the reflexes become inadvertently abolished the supplemental anesthetic must be withdrawn until they again become active

Dr Frank C Mann Rochester Minn Working with a somewhat inaccurate apparatus makes my conclusions open to question, but I feel justified in holding that within limited range of tensions you get the same phenomena in all individuals In animal experimentation one can readily sense the variations in response to different tensions and I believe it can be established with a more accurate adjustment of the apparatus that within limited range of tensions, all animals of a species will respond similarly

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk ( ) are abstracted below

American Journal of Anatomy, Philadelphia

July XXII No 1

1 Factors Involved in Excavation of Cavities in Cartilaginous Capsule of Ear in Human Embryo G L Streeter Baltimore —p 1
2 Metopism L Bolk Amsterdam —p 27
3 Frequency of Localized Anomalies in Human Embryos and Infants at Birth F P Mall —p 49
4 Cytologic Observations on Behavior of Chicken Bone Marrow in Plasma Medium R Erdmann Princeton N J —p 73
5 Relationships and Histogenesis of Thymus Like Structures in Ammocoetes I E Wallin Milwaukee —p 127

American Review of Tuberculosis, Baltimore

July I No 5

6 *War Tuberculosis Program for Nation H M Biggs —p 257
7 Lessons from Canada's War Experiences with Tuberculosis J H Elliott Toronto —p 267
8 Prognosis in Tuberculosis from Standpoint of Occurrence of Hemoptysis and Tubercle Bacilli in Sputum F H Heise Trudeau N Y —p 280
9 Study of Signs and Symptoms of Automatic Disturbance Occurring in Pulmonary Tuberculosis M S Cohen, Philadelphia —p 289

6 **War Tuberculosis Program**—It is suggested by Biggs that the services of voluntary experts in tuberculosis be employed in various parts of the country in the examination of recruits for the army who show any signs or symptoms suggestive of pulmonary disease, or in whom the history indicates its possible existence And that an expert in the physical examination of the chest should make an examination before enrolling an applicant whose history shows that he has at any previous time had any illness resembling in character pulmonary tuberculosis who gives a history at any previous time of an attack of pneumonia or pleurisy, whose history shows that one or more members of his immediate family (father mother brother sister etc.) has had pulmonary tuberculosis or died of this disease every man with a flat chest whose weight as compared with his height is 15 per cent below the normal every man who gives a history of chronic catarrh or who has a cough or any symptoms of any disease in the chest, every man in whom any abnormal physical signs of any kind are found in the chest A careful history of previous illnesses should be taken in the case of every recruit, and preserved This history should also include the history of his immediate family as to typhoid (In the latter case if the man has suffered from typhoid the Widal test and an examination of the urine and feces for typhoid bacilli should be made) In any instances in which there is a cough with sputum the sputum should be examined, and, if negative it should be reexamined at least two or three times Any man with even a very limited amount of pulmonary tuberculosis that is latent or arrested is almost certain to break down under the physical strain of military training

and army life and a focus of disease previously latent or arrested will almost certainly become active Systematic and complete periodic reexaminations should be made of all troops within three months after enrolment and at intervals of three months thereafter

Every soldier who has had a cough for a period of two weeks, or any other symptom of pulmonary disease, or whose general physical condition has undergone a serious deterioration, should, if necessary, be isolated and referred to an expert for reexamination, and every soldier showing any definite signs or symptoms suggestive of pulmonary disease (when a positive diagnosis is not possible) should be placed under expert observation until a positive diagnosis can be made, or until the existence of pulmonary tuberculosis can definitely be excluded Cases in which a positive diagnosis of pulmonary tuberculosis has been made should receive sanatorium or hospital treatment, preferably in institutions located in their home states, since homesickness is likely to counteract the beneficial effects of climate in remote localities It is also recommended that an educational campaign on matters relating to the conservation of the health of troops be carried on in connection with all military training camps

Archives of Internal Medicine, Chicago

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10 *Pulse Flow in Brachial Artery Influence of Certain Drugs A W Hewlett, San Francisco —p 1
11 *Study of Case of Diabetes Insipidus with Special Reference to Mechanism of Diuresis and of Action of Pituitary Extract on It C D Christie and G N Stewart, Cleveland —p 10
12 *Multiple Hemangiomas of Skin Associated with Dyspituitarism G D Head, Minneapolis —p 24
13 *Phthisis Pulmonalis and Other Forms of Intrathoracic Tuberculosis W A Gekler, Chicago —p 32
14 Study of Small Outbreak of Poliomyelitis in Apartment House, Occurring in Course of Epidemic in Large City M T Burrows and E A Park, Baltimore —p 56
15 *Influence of Splenectomy on Metabolism in Anemia W Denis, Boston —p 79
16 Electrocardiogram, Its Relation to Cardiodynamic Events C J Wiggers, New York —p 93
17 *Studies of Blood in Beriberi I Yoshikawa, K Yano and F Nemoto, Tokyo —p 103
18 Renal Function in Patients Convalescing from Acute Fevers A Bookman, New York —p 112
19 *Two Cases of Heart Block Associated with High Blood Pressure J H Musser, Jr, Philadelphia —p 127
20 Studies in Variations of Tonus of Gastric Musculature in Health and Disease B B Crohn and A O Wilensky, New York —p 145

10 **Pulse Flow in Brachial Artery**—Of the drugs studied by Hewlett, nitroglycerin, pituitary extract, veratrum viride, atropin, strophanthin, camphor, epinephrin and strychnin, only the first two produced definite and unmistakable alterations in the size and form of the volume pulse recorded from the arm of man Nitroglycerin caused the pulse to become larger and more pointed, while pituitary extract had the opposite effect The fall of pressure produced by adequate doses of veratrum viride is not accompanied by definite changes in the pulse form In this respect the action of this drug differs essentially from the action of nitroglycerin

11 **Diabetes Insipidus**—The regulation of the excretion of water by the kidney was studied by Christie and Stewart in a case of diabetes insipidus It was supposed that on account of the high degree of the diuresis, the great quantity of water ingested and transported, and the marked diminution in the excretion and ingestion caused by pituitary posterior lobe extract, the conditions for such a study would be unusually favorable The conductivity of the blood serum was slightly increased and the relative volume of serum slightly diminished when the water excretion was lessened by posterior lobe extract or by water restriction The blood flow in the hands seemed to be increased during the antidiuretic action of posterior lobe extract This, so far as it goes, supports the view that a vascular effect in the opposite direction on the renal vessels may be responsible for the diminution in the urine excretion It was shown that under the action of posterior lobe extract the kidneys had the power of effecting a considerable concentration of the urine Other kidney functional tests gave a normal response Accordingly, no indication was obtained that the condition was in any way associated with a pathologic alteration in the kidney

12 **Hemangioma of Skin**—The two cases reported by Head are remarkable examples of multiple hemangiomas of the skin associated with clinical manifestations of pituitary gland changes In one case the skin of the scrotum, penis, inside of the thighs, arms, back and abdomen was affected In the second case the skin of the scrotum and the mucous membranes of the lips and mouth were involved

13 **Phthisis Pulmonalis and Intrathoracic Tuberculosis**—Roentgen-ray examinations of over 600 patients, with all forms of tuberculosis, and clinical and laboratory observation of over 2,500 such cases form the basis of Gekler's paper He says that the primary tuberculosis of children is the result of direct inoculation by inhalation of either dried bacilli or droplets containing bacilli The primary lesion is usually small and very often near the surface of the lung The regional bronchial gland involvement is invariably present, and the symptomatology is caused by the bronchial gland disease The bronchial gland tuberculosis of the adult may be a flaring up of a latent process which dates back to childhood, or may be the result of the infection of an adult who has never before come in contact with tuberculosis Here again the symptoms are caused by the glandular disease. Phthisis pulmonalis is a bronchogenic metastasis from a diseased gland In rare instances it may be caused by the reinfection from without of an already infected individual Pleural tuberculosis, as it is known clinically, either dry or with effusion, is also a metastasis from a preexisting focus in a bronchial gland or in the lungs themselves Possibly this may in rare instances be caused by a reinfection from without Miliary tuberculosis is a hematogenous metastasis which also very often comes from a bronchial gland This hematogenous metastasis may be such as to result in a general miliary tuberculosis, or in an abortive miliary tuberculosis with local manifestations in the kidneys, joints, etc Lymphangitis tuberculosa as a clinical entity is a rather uncommon condition, in Gekler's experience, and the true tuberculous granuloma of the lungs, and presents a very different type of disease than any of the others It is usually benign, with a good prognosis

In many instances, in the majority perhaps, tuberculosis is a cryptogenic disease, and the organic manifestations are due to bronchogenic or hematogenous metastasis From the standpoint of therapy it is of immense importance, to discover the crypts and use such treatment as will inhibit metastasis, rather than try to treat the metastatic disease after it has once manifested itself Particular stress is laid on the diagnosis of bronchial gland tuberculosis before the development of metastasis with its very uncertain outcome

15 **Influence of Splenectomy on Metabolism in Anemia**—Metabolism studies were conducted by Denis before and after operation in six cases of anemia in which splenectomy was performed These included two cases of pernicious anemia, two of Banti's disease, one of family jaundice and one of "atypical splenic anemia" It was found that while, in some of the cases examined, changes in the excretion of certain bodies occurred, these changes were not constant, thus in two cases the uric acid output was much increased after operation, in one it was reduced, while in three no change was noted In a series of observations on the phosphate excretion it was found that while in five cases the output of phosphates by the kidney was increased after operation, in one it was decreased It is of interest to note that there is no relation between these changes in uric acid and phosphate excretion and the increase in leukocytes noted in the blood counts made during the postoperative period A study of the sulphur excretion showed no changes, either relative or absolute, which could in any way be attributed to the removal of the spleen Blood analyses did not confirm the findings of King and Eppinger regarding the increased content of fat in the blood after splenectomy, cholesterol was found to be more or less increased in every case

17 **Studies of Blood in Beriberi**—The authors found that the quantity of urea in the blood of beriberi patients shows,

in mild cases no deviation from the normal, but in the majority of severe cases a marked increase Ambard's coefficient is not infrequently higher than normal in beriberi, that is, the function excreting urea is frequently disturbed The disturbance of the kidney function does not necessarily coincide with the gravity of the clinical manifestations Even in cases in which the clinical symptoms are severe if the function excreting urea is intact the prognosis is hopeful It is possible that cardiac failure in beriberi is due to an accumulation of some unknown toxic products in the blood the elimination of which is coincident with the elimination of urea

19 **Heart Block Associated with High Blood Pressure**— Two cases of heart block with extremely high systolic pressure are recorded by Musser Evidence is offered to show that this high pressure is dependent more on increased blood mass discharged by the left ventricle than on the associated cardiac hypertrophy and peripheral sclerosis

Archives of Ophthalmology, New Rochelle, N Y

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23 Sarcoid of Eyelid G Derby Boston —p 312
24 Pressure Signs of Certain Intracranial Conditions Observable in Fundus of Eye W Sharpe New York —p 320
25 Report of One Hundred and Three Successive Cataract Operations Eighty Three in Capsule Twenty with Capsulotomy C B Meding New York —p 331
26 Ideal Intracapsular Cataract Extraction L Mell Los Angeles —p 344
27 Blockage of Trephine Opening after Elliot Operation J W Stirling Montreal Canada —p 352
28 Case of Unilateral Vertical Nystagmus Acquired in Adolescence and caused by Accident A Lutz Havana Cuba —p 357

Boston Medical and Surgical Journal

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30 Syphilis in Internal Medicine W P Boardman Boston —p 72
31 Comparison of Several Methods of Specific Early Treatment of Acute Anterior Poliomyelitis H Ulrich Boston —p 78
32 Technic and Interpretation of Dental Roentgenograms H McIntosh Boston —p 84
33 Preparation of Animal Food Proteins for Anaphylactic Tests R P Wodehouse and J M D Olmsted Boston —p 85
34 *Body Types in Epileptics M B Hodskins Palmer —p 87

31 **Several Methods in Treatment of Poliomyelitis**—The 120 cases studied by Ulrich were divided into six groups each group being treated in a different manner Group I was treated with three intraspinal injections of immune serum Group II was treated similarly with normal serum, cases of Group III were injected with their own spinal fluids (autotherapy—Duncan) Group IV comprised cases on which the effect of simple withdrawal of spinal fluid was tested, Group V received no specific treatment, Group VI includes cases of which one was of doubtful diagnosis one died of pneumonia and the others were moribund on admission The immediate effects showed no apparent differences in the various series A comparison of the results obtained shows that none of the measures used had any favorable influence whatever on the progress or outcome of a single case Ulrich concludes, therefore, that not only must the various measures employed in this study be looked on as useless at least after the onset of paralysis and under the conditions under which the investigation was carried out, but the manipulation of the sufferers necessarily attendant on lumbar puncture causes great pain and would seem to be permanently harmful in view of the great need of rest during the early stage of the disease

34 **Body Types in Epileptics**—One hundred and fifteen patients are included in Hodskins study which on analysis, gave forty-seven carnivores, 40 8 per cent , eight herbivores, 6 per cent., and sixty normals 52 1 per cent The causes of the epilepsy in the carnivores as determined by the clinical examination, are as follows idiopathic twenty-two, indigestion seventeen, meningitis four diphtheria, two, hydrocephalus and alcohol poisoning one each In the normal group the determined causes were encephalitis sixteen, meningitis ten, cerebral hemorrhage, seven, birth injury, three, rachitis, six, blow on head congenital syphilis, diphtheria, pneumonia and sunstroke, one each, measles two, idiopathic four, indigestion, seven On further analysis it was found that, in the carnivorous group, 10 per cent were due to organic causes and in the normal group 60 per cent Thirty-six per cent of the carnivores and 48 per cent of the normals had a hereditary tendency

California State Journal of Medicine, San Francisco

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42 Mercurialized Serum Injections in Syphilitic Nervous Diseases H C Mehrtens San Francisco —p 255
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48 Common Injuries of Eye and Their Treatment H Barkan San Francisco —p 270

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50 Acidosis in Diabetes and Nephritis C D Christie Cleveland —p 481
51 Epidemiology of Whooping Cough in Cleveland for 1915 and 1916 C F Harmon Cleveland —p 487
52 Clinical Forms of Nervousness A R Timme Cleveland —p 491

50 **Acidosis in Diabetes and Nephritis**—About seventy determinations were made by Christie on the blood of patients afflicted with varying degrees of nephritis for acidosis He used the methods of determining the carbon dioxid tension in the alveolar air and the volume of carbon dioxid in the blood and at the same time attempted to correlate the results obtained by the use of the so-called Sellards test in some of the patients In addition he estimated the total nonprotein nitrogen or the urea content of the blood The results obtained show that not all patients having incompetent kidneys for the excretion of nitrogen show the same incompetency for the excretion of acids Usually if there was a high degree of accumulation of nonprotein nitrogen in the blood there was at the same time some lowering of the alkaline reserve of the blood Very frequently mild accumulations of nonprotein nitrogen were encountered with a normal alkaline reserve. Instances also show that there may be no accumulation of nonprotein nitrogen in the blood of nephritics but at the same time very marked lowering of the alkaline reserve Varying degrees of acidosis are encountered very frequently in nephritis Usually they are only of moderate severity and are largely due to phosphate and sulphate retention Occasionally it may become of severe degree with complicating factors It is usually present in uremia but doubtless plays a small part in the phenomena Rarely do the nephritic patients with their mild acidosis suffer any outward unpleasant symptoms Another type of acidosis which may be of service eventually in the explanation of certain clinical phenomena is that due to the impaired elimination of the volatile acid carbon dioxid through the lungs

Journal-Lancet, Minneapolis

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91 Study of Sixty Seven Cases of Epidemic Cerebrospinal Meningitis R C Rosenberger and D F Bentley, Jr, Philadelphia—p 60
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Southern Medical Journal, Birmingham, Ala

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108 Pellagra, Its Etiology and Treatment. J H Graves, Waco, Texas—p 547
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112 Acute Appendicitis with Peritonitis, Cases that Should Not Be Drained J W Long, Greensboro, N C—p 565
113 *Acute Hematogenous Unilateral Infection of Kidney, Report of Case J M Maury, Memphis, Tenn—p 567
114 *Traumatic Asphyxia J G Sherrill, Louisville, Ky—p 568
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116 First Aid to Injured as it Applies to Railroads. R W Knox, Houston, Texas.—p 581
117 Functions of Splint in Treatment of Fractures of Long Bones. E B Claybrook, Cumberland, Md—p 585
118 Simple Enucleation and Evisceration of Eyeball are Unsurgical Technics T J Dimitry, New Orleans—p 594
119 Direct Laryngoscopy and Bronchoscopy C Stockard, Atlanta, Ga—p 600
120 What Tulane Has Done for Country in Times of War R Matas, New Orleans—p 605
121 Patriotism and Profession J N Baker, Montgomery—p 608.
122 Relation of Medical School to Community W F R Phillips, Charleston, S C—p 609

106 **Flagellate Infection of Intestines**—Direct irrigations of the duodenum with substances, toxic to these parasites, but harmless to the patient, are used by McNeil The following solution has been used in numerous cases methylene blue (medically pure), 5 grains, quinin sulphate, 20 grains, hydrochloric acid (concentrated), 30 mm, distilled water sufficient to make 1 pint This solution is injected directly into the duodenum through a duodenal tube to which a funnel is attached About ten minutes is required for the injection The fluid is injected warm There is said to be absolutely no danger to the patient from such injections As a preliminary to the treatment, it is advised to keep the patient on a liquid or semiliquid diet for two days preceding the injection and to administer a saline purgative on the preceding night One such injection is given daily for three mornings, the last two injections, in an adult, being double quantity On the evening of each day on which an injection has been given, an enema of 1 5000 methylene blue is given high up into the colon. After three such treatments the patient is allowed to go about his business but is instructed to return at the expiration of one month for further examination On his return a saline purge is given and the stools following this purgative are examined very carefully for the presence of parasites

113 **Acute Hematogenous Infection of Kidney**—In Maury's case, the preoperative diagnosis was appendical abscess with the appendix turned outward and confined between the lateral wall of the iliac fossa and the cecum Entering the peritoneal cavity through an incision over the mass, Maury found the

cecum high the appendix normal and both closely applied to the mass which was in the cellular tissue behind the bowel and evidently connected with the lower pole of a kidney, which was displaced downward Closing the incision and making one on the loin, an abscess was encountered in the lower pole of the kidney, which had ruptured through the capsule and infected the surrounding cellular tissue Isolating and bringing up the kidney revealed no other lesion so it was returned to its bed and the wound closed around a rubber drainage tube

114 Abstracted in The Journal, Jan 27, p 309

Southwestern Medicine, El Paso, Texas

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150 Lactosuria Case Presenting Unusual Features Clinical Report. L. M Warfield Milwaukee—p 63
151 Miners Consumption A. J Lanza Denver—p 64

146 **Pneumonia in Children**—Myers says that the best results are obtained by looking on the process as an intoxication rather than a localized inflammatory disease of the lungs In addition to general measures an abundance of water to drink, sodium bicarbonate internally, and occasionally digitalis are the only things mentioned The soda seems to lessen the toxemia in many cases and thus to enable the child to pass through the period of illness with the minimum amount of discomfort and danger Myers believes that when sodium bicarbonate is used freely the need for the treatment of special symptoms is greatly reduced Perhaps for this reason digitalis seems to be required only rarely Persistent or painful cough may call for a few doses of opium in some form, but it is better to administer it separately and only when it is needed to secure sleep, and not to give it in a mixture which is to be taken throughout the whole twenty-four hours

FOREIGN

Titles marked with an asterisk (*) are abstracted below Single case reports and trials of new drugs are usually omitted

Archives of Radiology and Electrotherapy, London

June, XXII No 1

1 Simplified Roentgen Ray Methods H C Gage—p 1
2 Roentgen Observations on Duodenum, with Special Reference to Lesions Beyond First Portion J T Case—p 16 To be continued

Glasgow Medical Journal

June LXXXVII No 6

3 Maternity and Child Welfare Schemes Responsibility of Local Authorities Under Notification of Births (Extension) Act, 1915 A K Chalmers—p 321
4 Acute Cystitis A G Faulds—p 336.

Indian Journal of Medical Research, Calcutta

April IV, No 4

5 *Vitality of Tubercle Bacillus Outside Body M B Soparker—p 627
6 Results of Bacteriologic Examination of Stools of Six Hundred and Fifty Nine Cases of Cholera at Calcutta E D W Greig—p 651
7 Bacteriologic Studies of Cholera like Vibrios Isolated from Stools of Cholera Cases in Calcutta E. D W Greig—p 658
8 Study of Kala Azar J W Cornwall and T K Menon—p 672
9 Experimental Immunization Against Rabies by Method of Phisalix J W Cornwall and T K. Menon—p 688
10 Chemical Investigation of Varieties of Chaulmoogra Oil in Connection with Leprosy Treatment.' S Ghosh—p 691
11 *Hemolysis by Sodium Oleate and Sodium Gynocardate W D Sutherland and G C Mitra—p 698
12 Role of Blood in Ovulation in Culicidae S K Sen—p 729
13 Girsterakis Girardi (n g, n sp) and Other Suckered Nematodes C. Lane—p 754
14 *Appearance of Malignant Tertian Rings in Blood During Intravenous Injections of Tartar Emetic. E. D W Greig—p 766
15 Prevalence of Ankylostomiasis in Madras Presidency K. S Mhaskar—p 771
16 *Improvements in Bacteriologic Media New and Efficient Substitute for Nutrose R L. M Wallis—p 786
17 New Test for Chlorin in Drinking Water and Its Application for Estimation of Chlorin Present. R L. Wallis—p 797
18 Use of Aromatic Chloramin Compounds for Sterilization of Water for Drinking Purposes R L. M Wallis—p 800
19 Sprouting Capacity of Grains Issued as Rations to Troops. E. D W Greig—p 818

5 **Vitality of Tubercle Bacillus Outside Body**—It is evident from Soparkar's experiments that there is an appreciable period after the complete drying of tuberculous sputum, during which some of the tubercle bacilli contained therein remain alive In the case of direct sunlight the time is approximately two hours, this interval is not long, and the danger of infection from tuberculous sputum deposited in open places exposed to the sun cannot therefore be considered to be great In the case of sputum deposited in a place exposed to diffused daylight the interval during which sputum dust may remain infective can be calculated in days But here, too, the tubercle bacilli soon lose their virulence if the place be well lighted, the rate at which the tubercle bacilli become devitalized probably depending on the intensity of the light. The danger of spreading infection is greatest when sputum is deposited indoors especially in dark ill-ventilated places In these conditions tubercle bacilli may retain their vitality and power to cause the disease as long as 309 days From decomposing sputum living tubercle bacilli could be isolated after twenty days but not after twenty-six days Bovine tubercle bacilli were found to be more resistant to sunlight and diffused daylight than human tubercle bacilli When exposed to electric light the bovine bacilli were found alive for seventy-four days but dead after one hundred days It took three to four hours in direct sunlight and three to four days in diffuse daylight for a pellet of sputum to become

sufficiently dried to be capable of being reduced to dust. The adoption of suitable building by-laws to ensure the entrance of sufficient light and air in all inhabited rooms in houses will do much to combat the spread of tuberculosis

11 **Hemolysis by Sodium Oleate and Sodium Gynocardate**—Sutherland and Mitra found that 0 16 c.c. of serum, homologous or heterologous, interferes with the hemolytic action of sodium oleate and the sodium gynocardates to such an extent that four times the dose of these which, when no serum is present, causes hemolysis of 5 c c of a 5 per cent suspension of erythrocytes in two hours, has no effect within twenty-six hours The proportions here are 0 16 c c of serum to 0 025 c c of erythrocytes In vivo the serum and the erythrocytes are equal, but 1,000 times the minimum hemolytic dose of the gynocardates may kill a rabbit within five minutes It is unlikely that the hemolytic effect has anything to do with the lethal result in such a case, the action of the soap on the lipoids of the heart muscle must be a factor in causing so rapid a result Further experiments will be made as to the role played by rapid intravascular coagulation

14 **Tartar Emetic and Malaria**—Two observations are reported by Greig In one during the intravenous injections of tartar emetic the benign tertian parasite appeared in the blood and produced fever, in the other fever occurred and malignant tertian rings appeared If Rogers' observation be confirmed it would seem that tartar emetic has a very delicate selective action, it would appear to be capable of killing the protoplasm of the sexual form of malignant tertian parasite of malaria, but has little or no action on the asexual form

16 **Substitute for Nutrose**—A new and efficient substitute for nutrose has been prepared by Wallis from substances obtained in India, namely, casein 5 parts, peanut flour 94 parts, and sodium carbonate 1 part This preparation combines ready solubility in water, with a high protein content, and consequently is of great nutritive value This preparation when used for making the Conradi-Drigalski medium gives a transparent medium, on which the typhoid coli group of organisms grows with marked luxuriance The property of stimulating the growth of organisms appears to be due to the presence of a vitamin associated with the globulin contained in the peanut flour In view of the high protein content, and relatively small amount of carbohydrate present, this preparation is particularly useful for making bread for diabetic patients, and also for admixture with ordinary flour The new preparation combines the properties of a highly nutritive foodstuff, containing a vitamin, and extreme cheapness

Journal of Tropical Medicine and Hygiene, London

June 15, XX, No 12

20 Seven Day Fever in Anglo Egyptian Sudan R G Archibald —p 133

Lancet, London

June 23, I, No 4895

21 Treatment of War Wounds A E Wright —p 939
22 *Masks for Facial Wounds F D Wood —p 949
23 Albuminuria in Trenches H B F Dixon —p 951
24 Universal Arm Splint G E Wilson —p 953
25 *Temporary "Pilons." A H Bizarro —p 954
26 Case of Pharyngeal Diverticulum J McClure —p 955
27 Development of Trained Nursing in France E Montizambert. —p 971

June 30, No 4896

28 Day's Work A Macphail —p 979
29 Limitations of Vaccine Treatment R J Rowlette —p 984
30 *Treatment of War Heart A E Garrod —p 985
31 *Analysis of Cases of Tetanus Treated in Home Military Hospitals D Bruce.—p 986
32 Detection of Entameba Histolytica and Its Cysts A C Inman —p 990
33 *Treatment of Trench Rheumatism and Allied Conditions by Colloidal Sulphur J D Comrie —p 991
34 Effect of Vaccinia on Well Being of Children. J P Kinloch —p 993
35 Sole Use of Reverdin's Needle V Bonney —p 994
36 Ultraviolet Radiation C A Schunck —p 996
37 Case of Acute Intestinal Obstruction by Meckel's Diverticulum E M Sympson —p 998
38 Case of Suprapubic Hernia W H Forshaw —p 998
39 Case of Antral Absce[illegible] Treated with Salicylic Acid P R Wilde —p 998

22 **Masks for Facial Wounds.**—The cases treated by Wood are those in which the wounds or depredations of disease have been so severe as to remove them beyond the range of even the most advanced plastic surgical operations A cast is made of the patient's face in plaster of Paris All wound cavities are filled up with dressing and cottonwool, and these in turn covered with goldbeater's skin The nostrils are blocked with cottonwool, the patient breathing through the mouth, if through the nose a quill is inserted for breathing throughout this operation It depends on the area of wound as to whether nose or mouth breathing can be allowed during the process Having obtained the mold and dried it slowly the next stage is to French-chalk it and take from it a clay or plasticine squeeze, which provides a positive model of the patient's healed wound and the surrounding normal tissue surface This model is further developed by means of sittings of the patient, and this stage is completed by taking another cast—a negative

The task now is to reconstruct the destroyed feature or features from the model taken from this negative mold, by building them up to match the corresponding or adjoining features of the patient, or from prewound photographs, taking the utmost care the whole time to keep the adjustment of the edges to the patient's face-planes A cast is then taken of this, further manipulation is required for the fitting of an artificial eye (if the case includes such), a last comparison with the original is made, and the mask, in plaster, is complete From this an electrotype plate is deposited It is of pure copper, 1/32 inch in thickness The necessary fitments for glass eye and attachments are fixed, and it is finally well covered with an electric deposit of silver The last adjustments are now made to the patient's face, the securing of the plate to the face being carefully considered The attachment is usually made by means of strong spectacles, but spirit-gum and ribbons have sometimes to be used, varying with the character of the wounded area. Every thing depends on the efficiency of the attachments in the matter of comfort to the patient, which is necessary in such cases, so that his attention shall never be drawn to his deficiency unless necessarily The adjustment must be exact, therefore, and the edges of the plate can in no case be allowed to part from the sections of the patient's skin with which they coincide.

The plate has now to be pigmented to match the complexion of the patient A thin coating of cream colored spirit enamel forms a good basis for the subsequent flesh color matching, as it leaves the oil color mat when dry, which facilitates the blending of plate with face If the patient has an oily or shiny skin a semblance is easily obtained by varnish rubbed down to match The eyebrows are painted to match and the eyelashes are made of thin metallic foil carefully soldered to the plate, cut finely by scissors, and tinted to match Renewal of the pigmentation must be made from time to time, however, for scar tissue changes the contours of the face, and readjustments must occasionally be made If these changes are very great a new plate might have to be substituted for the original

25 **Temporary "Pilons"**—The material used by Bizarro consists of a wooden frame, easily made, poroplastic, webbing, plaster, bandages and a little felt The first step in applying a pilon is to make a mold of the stump with poroplastic With the patient standing (particularly in thigh cases) on the sound leg the bony tuberosities should be well marked, and the upper end of the first layer well adapted to them so as to support the weight of the body in walking The lower end of this first layer, in the great majority of cases, is left open, and all the support of body takes place on the superior part of the tube Having molded and fixed this inner coat of the pilon, keeping it very smooth on its inner face, it is covered with a few layers of plaster Then, having tried it well on the patient, the wooden frame is measured, allowing for the heel of the boot, and is fixed to the inner cylinder by means of plaster Webbing pieces are included in it, and when the plaster is dry, the inner cylinder is fixed to the frame by means of screws or rivets to make the whole more solid For stumps of the thigh felt only is

used on the upper part of the poroplastic and Bizarro emphasizes that in these cases the bottom of the cylinder is entirely open To avoid softening of the structure of the cylinder due to perspiration particularly in warm weather, holes of 5 cm diameter can be drilled through the supporting belt which at the same time make the pilon lighter

30 **Treatment of War Heart**—Treatment by graduated exercises which has proved so useful in the differentiation and cure of the functional cases Garrod says is unsuitable and does actual harm in the organic cases so long as the physical signs of damage to the heart muscle persist The symptoms described by the patients are shortness of breath on exertion inability to walk any distance and in some cases precordial pain The physical sign is an extension of the cardiac dulness toward the right often to 1½ or 2 inches beyond the midsternal line Only in extreme cases is there any conspicuous extension toward the left The dull area has a clearly defined outline and yields a sense of resistance on percussion The resistance can also be appreciated by dipping with the pads of the fingers along the course of the ribs or intercostal spaces Experience has convinced Garrod that the fitting treatment for such patients is complete rest until the cardiac dulness has returned to its normal limits and for at least a week afterward The hearts of many patients which have not responded to modified rest have come in after complete rest has been imposed The patient is not allowed to rise from his bed for any purpose or even to sit up in bed for his meals nor is he permitted to smoke When the dilatation is recent the cardiac area may return to its normal limits within as short a period as a week In cases of longer standing in which rest has not been imposed at the outset longer periods up to six or eight weeks have been required As a rule, under such treatment, the heart does not redilate

31 **Tetanus in Home Military Hospitals**—In the 200 cases of tetanus under review by Bruce the mortality was 36 5 per cent. The greatest number of cases occurred between the ninth and the fourteenth days Among the 200 cases 102 patients are noted as having received a prophylactic injection of antitoxin in France immediately after being wounded Only three patients are reported to have received prophylactic injections in home hospitals Of these 102 seventy four recovered and twenty-eight died giving a mortality of 27 4 per cent. Of the remaining cases there is no record of prophylactic treatment in eighty seven although in all probability most of them received it. Of these eighty seven forty-eight recovered and thirty-nine died a mortality of 44 8 per cent. The remaining eleven patients are said to have had no prophylactic injection of any kind Of these five recovered and six died a mortality of 54 5 per cent Of seventy two patients inoculated on day of wound the average incubation period was 29.5 days Of the eleven patients who received no prophylactic inoculation the average incubation was 15 7 days Out of the total of 200 cases the number of patients treated with antitetanic serum after the onset of symptoms was 198 (99 per cent.) Two patients did not receive therapeutic treatment with antitetanic serum in England both died There is no record that either of these men received a prophylactic injection in France Of the 198 patients who received serum treatment 127 recovered and seventy-one died, mortality, 35 8 per cent.

33 **Trench Rheumatism Treated with Colloidal Sulphur**—Comrie has found intramuscular injections of colloidal sulphur to be of the very greatest value in the treatment of subacute painful conditions in the muscles and joints The most satisfactory course of treatment consists of an injection administered every second day for three weeks (ten injections) combined with rest and with massage on the intervening days In the greater number of subacute cases lasting several months complete recovery may be expected after three to five weeks from the commencement of the treatment. This method is also very helpful in lingering cases of gonorrheal rheumatism It does not, however take the place of salicylate of soda in relieving the pains of acute articular rheumatism

Archives de Médecine des Enfants, Paris

June XX No 6 pp 281 336

40 *The Immediate and Remote Prognosis for Convulsions in Children A Collin and T Revon—p 281
41 Diabetes Proving Fatal in Two Months in Girl of 15 P Gautier and C Saloz—p 314
42 Present Status of Scleroderma in Children J Comby—p 318

40 **Convulsions in Children**—Collin and Revon assert that the old idea that the gravity of convulsions in children depends on the severity of the attacks their frequency and the age of the child is no longer tenable The prognosis depends exclusively on whether the convulsions are merely the manifestation of an overexcitable nervous system or are the initial symptoms of organic meningeal or brain disease This they say can be determined by the character of the spasms Clonic spasms are benign, the tonic are of grave import Clonic convulsions are the expression of the infantile spinal type as long as this lasts They occur only on certain soils an inherited neuropathic taint or an inherited alcohol taint They are an episode during the course of a predisposition not the beginning of organic disease These clonic spasms can be brought on with this predisposition by any mechanical toxic or physical cause for excitement of the cell They are a manifestation of bulbomedullar excitation not involving the cortex In the clinic they are always bilateral while in experiments made by stimulating the cortex they are always unilateral Still another argument is the minimal symptoms on the part of other apparatus with them

Tonic convulsions may on the other hand occur at any age and are the expression of some actual lesion of the cell They may occur in any one who has an infection involving nerve centers They can be produced by any physical toxic mechanical or infectious process modifying the histologic structure of the cell They are the manifestation of some lesion of nervous tissue as excitation of any point kept up long enough or intense enough will induce a tonic reaction possibly accompanied by grave respiratory or cardiac symptoms The later history of children with these benign or grave convulsions differs entirely The former are neuropaths and they will present symptoms more or less often, but these symptoms do not correspond to any pathologic anatomy known to date The children who have had tonic convulsions develop hemiplegia or epilepsy or succumb to meningitis or encephalitis and in the immense majority of the cases pathologic processes can be discovered with the microscope In short as Collin and Revon reiterate, with any tonic phase in the course of a convulsive condition the prognosis should be reserved both the immediate and the remote outlook The article is based on protracted study of eighty cases of convulsions Only seventeen were of the clonic type These were mostly older children and it was usually learned that other children in the family had had convulsions The details of these cases and also of the sixty-three children with convulsions of the tonic malignant type are tabulated The reflex convulsion causes merely clonic movements without concomitant symptoms, and it is thus possible to determine the prognosis from the first convulsion Any grave infection or intoxication damaging the nerve cell may bring on tonic convulsions even in a previously normal child

41 **Rapidly Fatal Diabetes in Girl of Fifteen**—Death occurred in two months after the first symptoms which were an enormous appetite and thirst with rapid loss of weight The coma lasted only one day and intravenous injection of sodium bicarbonate did not seem to have any effect The leukocytes numbered 30 000 and the sugar content of the cerebrospinal fluid was 5 8 per thousand, of the urine, 50 per thousand The liver and spleen were apparently normal even under the microscope

Bulletin de l'Académie de Médecine, Paris

June 12 LXXVII No 24 pp 755 776

43 *Isolation and Treatment at Paris of Tuberculous Soldiers. Mesureur—p 768
44 Functional Lung and Heart Disturbances after War Wounds of the Chest E Sergent—p 770
45 Surgical Pneumothorax R Le Fort—p 772

equally important, each in its own line, and useful places can be found for capable men with valvular or other heart disease who can safely do excellent work at posts where the attrition is less The French regulations classify the service as *armé* and *auxiliaire* and the advantages of this are obvious The man with well compensated heart disease is likely to benefit by the army life in the auxiliary service, office work, garrison duty, etc., while he releases an able-bodied soldier for the *service armé* The state will have less pensions to pay as they will not break down in the auxiliary service. This arrangement also reduces the number of cases of neuroses He cites the report of a pathologist who found evidences of arteriosclerosis of the aorta and coronaries in 45 per cent. of sixty young soldiers supposedly entirely healthy when killed

Riforma Medica, Naples

June 2, XXXIII, No 22 pp 589 608

79 The Preventorium in the Campaign against Tuberculosis A Pirera —p 589
80 Old Colonies Differ in Response to Decolored Stain Tests for the Cholera Germ A Azzi —p 593
81 Dysentery from Protozoa C Vallardi —p 594 Conclusion

Prensa Medica Argentina, Buenos Aires

June 10, IV, No 1, pp 1 12

82 *Difficulty of Individualizing the Diagnosis and Prognosis in Pulmonary Tuberculosis G A Alfaro —p 2
83 *The Cardiovascular Lesions in Two Cases of Severe Myopathy T C Navarro and C Correas —p 4
84 *Hematemesis in Gastric Crises of Tabes C. B Udaondo —p 6
85 Acute Abdominal Diseases R E Pasman —p 8 Continuation

82 **Prognosis of Pulmonary Tuberculosis** —Alfaro insists that tubercle bacilli in the sputum are of less moment for prognosis than continued clinical observation of the case as a whole The experiences with induced pneumothorax and climatic treatment have proved that even advanced and destructive cases may become arrested and heal

83 **Cardiovascular Disturbances with Muscle Disease** —Chronic myocarditis was found at necropsy of a boy of 11 with a serious muscular affection In a second similar myopathy case, a girl of 11 was completely crippled, the myopathy following an attack of measles at the age of 5 The legs were permanently flexed at angles of 90 and 120 degrees and there was extreme muscular atrophy The latter had not yet developed in a third case still in the initial stages There was marked sclerosis of the vessels in the fatal case and this seems evident or probable in the two still living children Muscle tissue has been replaced with connective tissue, and the latter has invaded the vessels also In still another case of progressive myopathy the arterial pressure is exceptionally high and the heart dulness much enlarged, especially the right side

84 **Hematemesis in Gastric Crises of Tabes** —Udaondo reports two cases in which an operation was done on the stomach for recurring hematemesis from assumed ulcer No lesions were found, but gastro-enterostomy was done. The pains recurring afterward as before, finally led to recognition of the tabes and improvement followed mercurial and sedative treatment In one case the first symptoms, pain in the limbs, had appeared four years before, and the gastric symptoms a year later In the second case pains in the stomach and vomiting were the first signs of trouble The man vomited more or less blood on several occasions in the following four months, and gastro-enterostomy was done Neither of these patients had had previous stomach trouble, and the hematemesis occurred at the height of the pains The blood was always of the coffee-grounds aspect One patient estimated that he had vomited a pint of blood on one occasion The fact that the hematemesis never occurred during an interval between pains should aid in differentiation in similar cases Siding reported a case in 1909 in a woman of 62 with hematemesis and lacteal secretion and also recurring atypical herpes zoster Another differential point is the absence of stomach symptoms during the intervals between the attacks of pain In his experience with tabetic gastric crises, hypoacidity was the rule except during the crises

Revista de la Asociacion Medica Argentina, Buenos Aires

May, XXVI No 150, pp 419 594

86 Unusual Form of Pigmented Retinitis R Argañaraz.—p 419
87 *Operative Treatment of Gastric Cancer A. J Bengolea.—p 426
88 Colectomy for Acquired Megacolon A. Ceballos.—p 471
89 History of Bubonic Plague A M del Pont —p 477 Continuation
90 *Papillomatous Form of Venereal Granuloma A. H Roffo and J A Farini —p 550
91 Secondary Nutritional Disturbances in Tuberculous Infants F Schweizer —p 570
92 *Protecting Salve for the Surgeon's Hands. T Varsi —p 578

87 **Gastric Cancer** —Bengolea describes three typical cases with twenty-four illustrations to show the preferable technic for total or subtotal gastrectomy Mayo calls it the Polya method, but Bengolea thinks that Delageniere published the same technic three years earlier

90 **Venereal Granuloma.**—The lesions in the case described extended from high up in the inguinal region to back of the anus, with extensive papillomatous hypertrophy, in the course of seven years, but there was no impairment of the general health The same parasitic elements first discovered by Donovan in 1905 were found in the smears, and prompt benefit followed intravenous injections and local application of antimony and potassium tartrate.

92 ***The Surgeon's Hands*** —Varsi paints with iodin the nails, then scrubs with running water and soap, wipes dry and then applies petrolatum containing 4 per cent eucalyptol and 2 per cent thymol This sterilizes and protects the hands against both germs and irritations of all kinds, and he has found this method of caring for the hands absolutely reliable.

Revista de Medicina y Cirugia, Havana

June 10 XXII No 11, pp 273 296

93 *Pseudomyxoma of the Peritoneum J A Presno —p 275

June 25, No 12, pp 297 320

94 *Clonorchis Sinensis in Cuba P L Querens —p 297
95 Child with Two Heads and Necks. (Monstruo derodimo) J M Cabarrouy —p 305
96 *The Cause of Appendicitis and Means to Ward It Off A Lorand (Carlsbad) —p 309

93 **Pseudomyxoma of the Peritoneum.**—Presno recalls that the condition in which the abdominal cavity contains a quantity of jelly-like substance, has been called *maladie gelatineuse* or *pseudomyxoma of the peritoneum* Much confusion has been caused by the indiscriminate use of the terms "colloid" and "mucinous substance" in describing the jelly-like substance in question, as the origin of colloids and of mucin is quite distinct, as also the prognosis Rupture or metastasis of colloid ovarian cysts is of a cancerous nature, while pseudomyxoma from rupture of a mucin cyst is not malignant. Presno has encountered three cases in which the pseudomyxoma was the result of perforation of the appendix distended with the jelly-like substance He says that sixteen such cases had been published by 1912, and a number have been reported since. Elbe compiled in 1909 over 150 cases of cysts or cystic dilatation of the appendix, but neither he nor Kelly mentions pseudomyxoma of the peritoneum as a consequence of rupture of an appendiceal cyst. The jelly like substance as analyzed by Sarvonat consists of mucin with traces of fat and cholesterol, but no colloid Presno's patients were three women between 22 and 38 with a history of chronic or recurring acute appendicitis All were cured by appendicectomy and clearing the peritoneum from the jelly-like masses No signs of metastasis or recurrence have been detected in any instance during the years to date.

94 **Clonorchis Sinensis in Cuba** —Querens reports what he thinks is the first case to be published in Cuba of this intestinal parasite He quotes freely from Gunn's article in The Journal, Dec 16, 1916, p 1835, and warns against the danger of this parasite getting a foothold in Cuba. His patient was a Chinese laborer at Preston in eastern Cuba He had been living in Cuba for eight years, and claimed to have been always in good health until four years ago when a dull ache and oppression attracted attention to the liver region The symptoms gradually became more severe and during the last year he lost [illegible] and for four [illegible] his had been vomiting after meals [illegible] finally slight chills

every day with fever The discovery in the stools of the very small eggs of the clonorchis cleared up the puzzling diagnosis The malaria parasite was found in the blood and quinin was given but the condition grew progressively worse, the vomiting uncontrollable, with death the tenth day In prophylaxis besides measures to prevent the importation of the parasite it is important to boil the drinking water and cook most thoroughly all marine food, as in Japan at least, the intermediate host has been shown to be a fish

96 **Prophylaxis of Appendicitis**—Lorand calls attention to the rubbing of the psoas muscle on the appendix as impeding the evacuation of the appendix and also as a cause of irritation In a naturally large appendix the mark made by the pressure of the psoas on the appendix is quite noticeable When the psoas is relaxed the appendix rests on it peacefully, but when the psoas is exercised the appendix may be tossed about its outlet squeezed together, and a predisposition to appendicitis develops Running skating bicycling and sitting with the legs crossed all keep the psoas at work and the appendix suffers This can be discovered by having the right foot raised as high as possible while the right hand compresses the muscle If there is latent appendicitis pressure with the left hand on McBurney's point will induce intense pain By this means it is possible to diagnose appendicitis in its initial stage. When this is discovered all exercise straining the psoas muscle must be forbidden and the intestines kept open Even when the pain is quite acute the trouble may be merely from impacted feces or retained gases and when the bowel is cleared out the pain can no longer be elicited Another possible cause for appendicitis is sympathetic disturbance with inflammatory processes in the tonsils the whole endocrine system being liable to share in pathologic conditions involving even only one link in the chain He has often noticed hypertrophy of the tonsils with myxedema exophthalmic goiter acromegaly diabetes etc The tonsils may likewise affect the appendix by infectious matter from them reaching the bowel Adenoids may also contribute indirectly to pathologic conditions in the appendix

Semana Medica, Buenos Aires

May 10 XXIV No 19 pp 539 562

97 Nasal Treatment of Asthma A. Quadri—p 539
98 Gastrulation in Mammals (Por ultima vez el canal neurenterico) M Fernandez.—p 544
99 History of Public Health Service in Argentina E. R. Coni —p 547 Conclusion

Siglo Medico, Madrid

June 2 LXIV No 3312 pp 385-404

100 *Case of Transparent Peripheral Ectasia of the Cornea Marquez.—p 386
101 Hygienic Measures in Treatment of Pulmonary Tuberculosis. L. Calandre—p 387 Continuation

June 9 No 3313 pp 405-424

102 *The Pains with Kidney Stones. A P Martin—p 406
103 Excision of Entire Rectum A Morales—p 409
104 Diathermy in Gynecology Poblacion.—p 417 Continuation

100 **Marginal Ectasia of the Cornea**—Marquez patient was a man of 46 who complained of impaired vision in the right eye A white line like the senile arc ran along the outer margin of the cornea. It bifurcated to form a crescent enclosing the area of ectasia which comprised the two inner thirds of the upper semicircumference of the cornea The first sign of the anomaly was noted at the age of 10 The astigmatism was — 55 + 145 degrees 21 D The patient would not accept the proposed removal of the ectasia with the actual cautery This proved successful in Terrien's case with 0.5 and 11 D

102. **The Pains with Kidney Stones**—Martin describes the manifold forms of pain that may be induced by renal calculi Besides actual kidney colic there may be pain and discomfort during movements induced pain, reflex pain and crossed pains Pain in the urinary apparatus during exercise is suspicious of kidney stones The patient during examination should be told to jump and the sensibility then be tested anew Crossed pain is liable to mislead into serious error In one case of this kind a boy of 11 after having had a stone removed from the urethra, developed severe pain in the right kidney region when he moved about The right kidney was tender on palpation from front and rear The urine was bloodstained one day after fatiguing exercise but at all other times was apparently normal A radiogram of the right kidney showed normal conditions there but a peculiar shadow farther along proved to be that of a stone in the left kidney He has been free from all trouble since the removal of the oxalate urate stone by nephrolithotomy on the left kidney

Russkiy Vrach, Petrograd

XVI No 9 pp 193 216

105 *Scurvy and General Measures in Prophylaxis (O tsingye) A I Shibkoff—p 193
106 *Mortality from Erysipelas in Relation to Location and Age. (O rozhi) N M Ivanoff—p 198
107 *Smallpox Scares and Vaccinations. N T Gamalieya—p 201
108 The Rapidity of the Rise in the Pulse Rate V I Yanovsky —p 204
109 *Auricular Fibrillation with Heart Block N I Leporsky—p 205 Conclusion
110 Suggestions for Simpler and Less Expensive Artificial Limbs V N Pilkoff—p 209
111 Adjustable Band to Protect against Secondary Sudden Hemorrhage from Large Vessels After War Wounds V M Viner—p 210

105 **Scurvy**—Shibkoff urges that housing conditions are an important factor in scurvy as foodstuffs are liable to mold and spoil in the damp houses of the Russian peasants

106 **Erysipelas**—Ivanoff tabulates the details of 5 270 cases of erysipelas in the last three years at a hospital for women at Petrograd The total mortality was 4 4 per cent. but it was much higher with advancing years being only 1 per cent up to 20 and increasing progressively to 8 and 14 per cent at 50 60 and older In the young the face was the seat of the erysipelatous process twice as often as in the older patients

107 **Smallpox Scares and Vaccination**—Gamalieya tabulates statistics showing a total of 414 143 cases of smallpox in European Russia 1909-1910 including 1 739 cases in Petrograd Among the measures in vogue against it are house-to-house vaccinations when the disease is so prevalent as to arouse a smallpox scare But this is waste of energy, it is asserted There should be an ample vaccination force and regulations to enforce vaccination on those that really require it not waiting for the smallpox scare and then have the vaccination done ineffectually, and wasted on persons who do not need it.

108 **The Pulse Coefficient**—Yanovsky has published a number of articles in the last nine years to call attention to the practical advantages of mathematical accuracy in estimating the work of the heart This is particularly useful, for purposes of comparison with arteriosclerosis as he describes in detail here The coefficient celeritatis pulsus, CCP, is the square root of the quotient obtained by dividing the square of the pulse pressure PP, by the product of the time required for the rise of the pulse wave TAP, multiplied by the time required for the decline of pulse wave, TDP In this communication he introduces a new element to add to the precision of the formula, namely the rapidity of the rise of the pulse wave the celeritas ascensionis pulsus, CAP This figure is calculated from the ratio between PP and TAP

109 **Heart Block with Fredericq Symptoms**—The fibrillation of the auricles was accompanied by bradycardia of the ventricles, dissociation being complete, in the case described with much detail by Leporsky The left ventricle also showed pronounced hypersystoles with hyposystole in the right ventricle. The auricular fibrillation changed to a slower rhythm, namely, tachysystole, probably from the influence of the medication, digitalis and inhalation of oxygen The case thus presented simultaneously the Adams-Stokes syndrome and the Fredericq syndrome The latter must therefore be regarded as occurring in two groups cases with and without the Adams-Stokes symptoms

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

May 12 I No 19 pp 1527 1622

112 *Roentgenograms Showing What Seem to be Calculi but which are not (Pseudonierensteenen) N Voorhoeve.—p 1528
113 *Deficiencies of Present Methods of Fighting Contagious Diseases P W Onnen.—p 1535

114 *Electrocardiograms of Frog Heart under Influence of Antiarin H C Rümke—p 1551
115 *Comparative Mortality of the Sexes J P H Kroon—p 1564
116 Case of Intraperitoneal Rupture of the Bladder H Jonker, Jr —p 1571

112 **False Kidney Stones**—Voorhoeve is instructor in roentgenology at the University of Amsterdam, and he here gives six roentgenograms showing shadows which seemed to be cast by unmistakable calculi in the kidney They proved, however, to be merely the shadows of gallstones, or of a tuberculous cavity with calcified content, or an old calcified echinococcus cyst Small tumors and local thickenings of connective tissue are also liable to cast faint shadows which may be misleading One patient had passed a kidney stone without colic and had no further trouble until six months ago when urination became painful and the urine contained traces of albumin and blood corpuscles A shadow was evident in the superior pole of the kidney, but its peculiar location and the fact that it was not a dark shadow, while the outline was irregular and not well defined, and the shadow of the kidney tissue around was rather lighter than usual—all suggested a calcified tuberculous cavity This was confirmed by discovery of tubercle bacilli in the urine and by the findings at nephrectomy His experience demonstrates the incorrectness of the tradition that gravel does not cast a shadow In one woman two calculi were found when the kidney was opened, but the third stone shadow proved to be merely from a mass of gravel Six roentgenograms show these various findings The calcified collapsed echinococcus cysts cast sharp, regular shadows, the outer part dark, with a lighter center A roentgenogram taken with the plate against the abdominal wall gives better shadows Gallstones cast smaller shadows under these conditions

113 **Inadequacy of Present Measures of Prophylaxis against Contagious Diseases**—Onnen discusses the experiences with diphtheria, scarlet fever, typhoid and measles in the Netherlands in recent years and the lessons to be learned therefrom They emphasize the necessity for placing the oversight over diphtheria and typhoid in the locality, each in the hands of one person who is supplied daily with all the data concerning these diseases in the place and also in the districts surrounding it, and the local conditions for combating it, and his authority, even if only advisory, is recognized by the local administrative authorities The absence of one or more of these four factors proved disastrous in some districts in the Netherlands, and also division of responsibility, instead of having one person at the head of the whole prophylaxis against each one of these diseases He reviews in particular the experiences in his own district, where he is an officer in the board of public health In the last ten years there had been from 3 to 7 cases of scarlet fever every year until 1913 and 1914 when there were 21 and 10 cases, respectively Special efforts were made to seek out in the schools and render harmless all abortive cases, and cases of "fourth disease," and other eruptions with fever The value of thus stamping out possible sources of infection is evident from the fact that the following year not one case of scarlet fever developed in the whole district During the same ten year period there were 90 deaths from measles, over two thirds in children under 2 None died among the children over 7 with measles The importance of warding off measles infection from very young children is emphasized anew by these figures This can be done efficiently only with notification of measles Prophylaxis on this basis is particularly imperative in day nurseries, kindergartens, etc Only 3 of the total 90 deaths were in children over 6 Onnen comments on the difficulties encountered when a physician tries to keep up his practice while serving on the public health board Individual and public interests are liable to conflict and hamper his work, it is much better, he declares, to have a salaried whole-time public health officer in charge of the measures against contagious diseases

114 **Experimental Research on the Heart to Explain the Electrocardiogram.**—Rumke experimented with the frog heart under the toxic influence of antiarin The changes in the rhythm of the heart beat shown by the tracings and also by the electrocardiograms suggest an explanation of the nature of the latter

115 **Comparative Mortality of the Sexes**—Kroon analyzes the mortality statistics of the Netherlands for males and females at different ages The almost universal higher mortality of males over females at corresponding ages is most pronounced the first year of life For each 100 girl babies that died between 1910 and 1914, 139 boys died in the first two months of life, 134, third month, 130, fourth, 127, fifth, 123, sixth, 115, seventh and eighth, 113, ninth and tenth, and 111, the eleventh and twelfth months Tschuprow once reported that the number of stillborn male children had been four times that of the female at the large maternities of Vienna and Budapest By the age of 10, the mortality in girls everywhere exceeds that of boys, Australia seems to be the only exception to this rule In the Netherlands, the mortality among boys from 10 to 18 does not average much above 80 per cent of the mortality in girls But with 18 it begins to run up again and keeps above the female mortality throughout the rest of life One table shows that the mortality of unmarried men is 141 to that of 100 unmarried women, and 172 to that of 100 married men The mortality of unmarried women is only 72 compared to that of 100 married women These figures embrace the age period of 20 to 25 At 50 129, 132 and 131 Other tables show that married men have a much lower mortality than married women (from 59 to 73 per cent) up to the age of 40, but then the mortality excess changes and the men show a mortality of 120, 128 and 126 which gradually declines to 103 in the eighties The excess mortality of married over unmarried women up to the age of 40 changes then abruptly, the mortality being much higher in the unmarried from 40 to 50 namely, 101, 130 and 131 Above this age it runs from 121 to 104, and drops to 100 at 70 and 80

Hospitalstidende, Copenhagen

June 6, LX, No 23, pp 549 572

117 Case of Complete Masculine Pseudohermaphroditism P Møller —p 549

Ugeskrift for Læger, Copenhagen

May 24, LXXIX, No 21, pp 813-854

118 Functional Tests of the Liver J P Gregersen—p 813 To be continued
119 *Morbidity under Prohibition (Alkoholforbudets Virkninger paa Kommunehospitalets VI Afd) H I Schou—p 823
120 *The Question of Specialization in Medicine T Rovsing—p 829

119 **Morbidity under Prohibition**—In this communication from the Copenhagen public hospital, Schou compares the number of cases of delirium tremens and of trauma in drunken men during a period of municipal total prohibition and the period before it, and during a period of partial prohibition in that a supposedly prohibitive price had been placed on liquors The cases of delirium tremens in the last four or five years have averaged five or six a week, but during the total prohibition period weeks passed without a case During the partial prohibition period there were also weeks without cases of delirium tremens but the number of "drunks" was even higher than usual, the restrictive measures evidently failing in their purpose Schou remarks that the weeks of peace and quiet in his service under total prohibition are now past, as drunkenness is as common as ever under the restrictive price, the so-called partial prohibition, but he does not expect the number of cases of delirium tremens to return to the old level, as it takes brandy to produce delirium tremens, and this is scarcely obtainable

120 **Specialization in Medicine**—Rovsing discusses this question from both the practical and the scientific standpoint The Danish Medical Association is now engaged in revising the lists of specialists in Denmark, a general medical or surgical training being now regarded as indispensable as well as the training in the special branch The only organization of Danish specialists who refuse to accept these views, he says, are the alienists They insist that a broader training in medicine is not necessary as a basis for care of mental disease, but he adds that they too in time, will have to admit the necessity of what every one else regards to be right

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol LXIX, No 6 | Chicago, Illinois | August 11, 1917

ESTABLISHMENT, MAINTENANCE AND REINSTITUTION OF BREAST FEEDING *

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MINNEAPOLIS

Persistent demand on the breast is a most important and continually neglected factor in the establishment, maintenance and reinstitution of natural or breast feeding

Normally, the flow of breast milk in the puerperium is supposed to be brought about by the hormones set free just before the milk "comes in" I have had no personal experience in the establishment of lactation without a preceding pregnancy Many dependable authorities, however, vouch for the possibility of such a phenomenon when proper demand is made on the human breast, either male or female Pfaundler's report of a calf which was suckled by other animals and produced normal cow's milk may also be cited as supporting the correctness of the cases reported among human beings

The premature infant is usually incapable of furnishing the physiologic sucking stimulus necessary to support the hormones When the importance of the continued demand on the breast is underestimated, the breast feeding fails This is entirely unnecessary

In the method used in such cases in the University of Minnesota new-born clinic and my private work, no attempt is made, except in slight degrees of prematurity, to put the babe at the breast at first Both breasts of the mother are expressed regularly five or six times daily

The expression is carried out as follows The breast is grasped about 1 or 2 cm back of the colored areola, and a milking motion is carried out toward the nipples The nurses and mothers soon gain a manual dexterity which is surprising No massage of the breast proper is allowed, as it is of little, if any, value, and sometimes causes traumatic inflammatory reaction If we consider the anatomy of the breast, we learn that the ducts which contain the milk extend but a short distance back of the areola Any one who has ever seen a cow knows that the teats are milked and not the cow's bag, and yet we often find head nurses, physicians and even pediatricians giving instructions to milk or "massage" the breast gland itself If our method is intelligently followed, it is possible to keep the mother of the premature infant from losing her milk I have seen some such mothers supply not only milk for their own babe, but also enough to supply a second infant

I shall not discuss agalactia, as I have never seen such a condition and seriously doubt its existence If the babe does not gain well at the breast, the trouble is practically always with the babe itself, or with the quantity but not the quality of the milk

Let me cite a case in which the trouble was supposed to be with the quality of the milk

I was called in consultation to see a baby who, at 8 weeks, weighed less than at birth We weighed the baby before and after nursing It received but 5 c.c (one teaspoonful) of milk The baby nursed unsatisfactorily, the breast gland was not being stimulated The babe had hypothyroidism, for that reason it sucked imperfectly Instructions were given to put the baby at the breasts regularly The babe was weighed before and after each nursing The breasts were then carefully expressed manually The expressed breast milk was given to the baby and instructions were left to make up the caloric requirement with a simple milk mixture Desiccated thyroid was also administered The milk secretion increased rapidly, the babe began to suck better and gained in weight, and after a short period the complemental feeding was dropped

When, for any reason, the breast milk supply is low, the amount that the child gets should be determined accurately by a balance, not by a spring scale The child should be put to the breast and the infant's food requirement supplied by complemental, not supplemental, feeding, that is, the required amount of extra food should be given immediately after a nursing, not in place of a nursing The pernicious practice of dropping a nursing and replacing it with an artificial feeding is one of the most frequent causes of the breast drying up and the loss of milk The breast is not stimulated, it is, in fact, the best method of weaning the infant

Breast feeding can also be established at a much later date by the same method

I saw a babe at the age of 1 month that had never been nursed It was possible to express a few drops from the mother's breasts The mother was told that with her cooperation the breast secretion could be reestablished The babe was put to the breasts regularly Of course, the infant did not take the nipples well The milk was carefully expressed after each nursing The babe's caloric requirement was met with a simple milk mixture given after the nursings, and the expressed breast milk. The babe was weighed before and after each nursing After a week or ten days, the scales and expression showed a definite and progressive increase in the amount of breast milk secreted At the expiration of a month of this treatment when the infant was 2 months old, the child's gain in weight was satisfactory and, as the amount of mother's milk was sufficient everything but the mother's milk was discontinued, and a successful lactation was carried out.

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* Chairman's address read before the Section on Diseases of Children at the Sixty Eighth Annual Session of the American Medical Association New York, June 1917

In the maintenance of lactation the same attention should be given to keeping up the demand as in the establishment of lactation The amount of breast milk obtained by the infant should be determined and the child's requirements met by complemental, not by supplemental, feeding The breasts should be evacuated at least five times in twenty-four hours

The success of relactation or reinstitution of breast feeding by making a demand on the breast furnishes more evidence in support of the importance of the demand which is made on the breast

Zlocisti made a definite contribution to the subject of "relactation," as he terms it He reported the reestablishment of lactation in several cases after the lapse of weeks and even after ninety days I have no doubt of the correctness of his reports I have tried his methods of putting the father to the breast, but feel that under our present social conditions we shall have more general success by the method we have used It is unnecessary to give a list of cases at this time, but I cite one instance of success as typical

> A short time ago, I saw an infant, aged 4 months, which was having convulsions, spasmophilic in character, on unnatural feeding The child had not had the breast for nine weeks It had been taken *from* the breast because of illness of the mother She had just returned from the hospital, in which she had had severe erysipelas followed by antrum trouble. The mother and babe were immediately taken to the hospital where the nurses had been properly trained in milking The babe's spasmophilia was controlled by the daily administration of sufficient dosage of calcium chlorid, 75 grains daily, followed later by phosphorus in cod liver oil The mother was assured that with her cooperation the milk could be brought back The breasts were stimulated regularly by placing the babe at the breast The babe refused to take the nipples at first The milk was carefully and thoroughly expressed and the babe's nutrition was maintained by complemental feeding For several days the results were discouraging, as but 3 or 4 drops were obtained The number of drops gradually increased Then the amount grew so that the product could be recorded in cubic centimeters Lactation was finally established

Confidence and technical skill are necessary in such cases The end sought is, however, ot enough importance to demand that the attending physician should exert as much patience and have as much skill as we expect of the surgeon who undertakes a major surgical procedure

I have intentionally omitted reference to the other aids to the establishment, maintenance and reestablishment, and to the literature in order not to befog the main point of making the demand on the breasts I do not pretend to have offered any new discovery

We know enough now, from a physiologic standpoint, to save the breast milk for most of the babies that are now deprived of it It has become a question of getting the information to the profession and the nurses and the public It is largely a question of psychology now and not of physiology

An Unbusinesslike Nation —The merchant accepts past experience as a guide to the need of future supplies, the salesman counts on publicity and education to create a demand for his wares Shall our cities or our nation ignore their greatest asset and fail to count the daily loss of lives as inexcusable? And yet—to our shame, be it said—we, who claim to be a civilized nation, have still so cheap a notion as to life and death that we are without a national registration law or uniform state laws demanding the reporting of births and deaths—Haven Emerson, M D, "Preparedness for Health"

THE TECHNIC OF WETNURSE MANAGEMENT IN INSTITUTIONS *

ISAAC A ABT, M D

CHICAGO

A large number of the babies brought to infants' hospitals suffer from gastro-intestinal disease caused by food disturbances Most of them are given hospital attention after various attempts have been made to correct the disorders by food and medicine. Consequently the condition of these babies, on admission into the hospital, may be correctly described as serious Most frequently they are toxic, either from disease or food, usually from both, so that the problem of detoxication is the immediate and pressing indication After undergoing the short preliminary period of starvation, these desperately sick infants require not only a detoxicating agent, but food as well to sustain life For both these purposes, nothing can compare in value to properly suited doses of breast milk An infants' hospital, which necessarily must receive the babies who have been most neglected and who require the most expert treatment, should consequently have at hand an ample supply of breast milk

TABLE 1—DAILY QUANTITY OF MILK EXPRESSED BY WETNURSE R F *

Day of Month	Oct oz	Nov oz	Dec. oz.	Jan oz
1	42	39	34	36
2	38	37	42	38
3	43½	35	34	36
4	36	37	37	37
5	34¾	36	38	34
6	33½	38	38	31
7	40	37	38	37
8	37	42	35	35
9	35½	36	39	35
10	40	36	34¼	39½
11	42	36	36	37½
12	43	36	37	38
13	41	35	40	39
14	42	38	41	38
15	37½	36	34	43
16	49	34	37	35
17	45	35	40	35½
18	45½	36¾	35	33
19	46	37	35	33
20	40¼	37,	38	37
21	40½	41	36	38
22	43½	38	37	33½
23	41	40	28	45
24	39½	36½	26	35
25	40	38	38	34½
26	40	38	31	35
27	41	35	27	26½
28	41	38	29	24
29	42	37½	31	22
30	43	36	31	22
31	36½		30	22
Totals	1,256 (39 25 qt)	1 112 5 (34 76 qt)	1,086 (33 94 qt.)	1,067 (33 65 qt)

* Total amount for four months, 4,521 5 ounces (14 6 quarts), average daily amount, 36 84 ounces, largest daily output, Jan 23, 45 ounces, previous occupation, telephone operator, primipara, married.

Although there is in Chicago at present no directory for wetnurses such as exists in New York and in Boston, we rarely have any difficulty in procuring wetnurses for the Sarah Morris Children's Hospital The various maternity hospitals and foundling asylums cooperate with us, and are glad to secure positions for their inmates, since wetnursing will not separate them from their babies

It has been found advisable to select women whose ages range from 20 to 30 years, although more depends on the qualifications of the individual than on her age A nurse of phlegmatic temperament and good morals is preferable, though it is needless to say that moral qualities are not transmitted through the milk At the time of admission to the hospital, the baby of the wetnurse should be at least 3 or 4 weeks old Before admission, the wetnurse and her baby must undergo a complete physical examination The mother is examined carefully for pulmonary tuberculosis, and diseases of skin, glands and bones The Wassermann examination is made in every case, and the vaginal secretion is examined for gonococci In examining the child, the weight and appearance are taken into account One must assure himself, at this point, that the mother is presenting her own baby for examination It has happened more than once that a woman desiring to engage herself as wetnurse has presented some other woman's baby borrowed temporarily for the purpose of successfully passing the test We must above all, in the examination, satisfy ourselves that the breast milk is sufficient in quantity and proper in quality In view of the lack of more scientific methods, the quantity of a nurse's milk is judged by weighing her baby before and after an ordinary nursing It may also be roughly estimated by expressing the milk by hand If pressure is applied to the breast in a proper manner, the milk is caused to jet from the nipples in numerous streams expelled with considerable force If, however, the milk slowly drips from the breast, the quantity may be considered deficient

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* Read before the Section on Diseases of Children at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917

The quality of the milk is best estimated by examining the baby of the wetnurse If the baby is in good nutrition, shows gain in weight, and has normal bowel movements, we may naturally assume that the milk is of good quality We place little reliance on the chemical examination of breast milk as an index of its quality The composition of the milk as expressed in chemical analysis varies so much during one and the same feeding, and during different periods of the day, that little reliance can be placed on this test

After the wetnurse has passed the physical examination, she is admitted to the hospital, where she and her baby are provided room and board There she receives a wage of $8 a week She is required to do some light work, among other things, the laundry for herself and baby and the care of her own room At the Sarah Morris Hospital it is insisted that she nurse her own baby, because by doing this she not only provides the best nutriment for the child, but also supplies a natural stimulation to her breasts The wetnurse feeds her own baby at 7 and 11 a m, and 3 and 9 p m Thus there is no chance for stasis to occur The secretion of milk is reflexly stimulated by the sucking act The more completely the milk is withdrawn the greater becomes the supply

Since the foster babies in our institution are not put to the breast, the milk is procured for them indirectly Breast pumps are not used because they have been found inefficient The mother, shortly after her admission to the hospital, receives instruction from a trained nurse in the technic of expressing the milk manually This method is rapid and results in no injury whatever to the breast As much cannot be said of the pump when it is employed

Milk is expressed every four hours during the day and night All the wetnurses milk at the same hour under the supervision of a head nurse and assistants Thus the operation is pretty well controlled At the specified period, the nurse on duty brings to the wetnurses' apartment the required number of sterile medicine glasses, sterile bottles, and materials for cleansing the breasts The nipples are first washed with sterile water Then after cleansing her hands, each wetnurse seats herself at a table on which the tray bearing the above described equipment has been placed, and begins the manipulation by which the milk is expressed It is to be noted that not the whole breast but only that part which corresponds to the areola is compressed As this portion is being compressed, the breast is at the same moment drawn downward and forward Following this method, the wetnurse soon becomes expert in emptying her breasts, so that it requires but a short time to complete the work

The milk is received in sterile medicine glasses designed with flaring top and stem similar to goblets This shape adapts them nicely to catch the milk as it streams from the breast As soon as filled, they are emptied into sterile half-pint bottles The nurse on duty remains in the room during the entire time the milking process is going on It is necessary to exercise watchfulness in supervising the operation, because it has been our experience in times past that wetnurses have practiced deceit, either* by diluting the milk or by substituting cow's milk for their own product

TABLE 2—DAILY QUANTITY OF MILK EXPRESSED BY WETNURSE L. T *

Day of Mo	Oct	Nov	Dec	Jan	Feb	March	April
	oz.	oz	oz	oz.	oz	oz.	oz.
1	39	35½	25	44	47	44	39
2	36	36	29	39	47½	38	40
3	39	37	26	40	56*	42½	39
4	46	37	33	49	43	45	41½
5	39	37½	38	48	44½	40	39
6	36	37	36	45	43	40½	39
7	42	37	39	44	43	39	40
8	45	38	38½	48	45½	41	39½
9	36	36	36	39	44½	39	39
10	37	33	39	46¾	41	39	40
11	36	39	40		45½	39	40
12	41	37	38		43	41	41½
13	39	37	35	44	44		41½
14	38	36	36	38	42		39
15	39	37½	37	36			40½
16	41	35	35	37½	44½		39
17	36	36	37	43	45	39	41½
18	36		38	36½	47½	39	39
19	39	33	37	39	45½	39	39
20	37	34	36	41	37	39	39
21	32		38	40	47	39	42½
22	33½	39	38	38	40½	39	39
23	37¾	39	40	37	48	39	42
24	36	39	40	41½	38	39	39
25	36¾	35½	41	38	42	39	38
26	35	34	38½	35½	43½	41½	35½
27	35	34	38	38	41	37½	38½
28	24½	29	44	39	39½	37½	41
29	36	27½	32	47		36½	40
30	39	27	40	50½		34	39
31	34		39	44		40	
Totals	1 156 5	992 5	1 136	1 206 5	1 188 5	1 067	1 190 5
	(36 14 qt.)	(31 01 qt)	(35 5 qt)	(37 7 qt)	(37 1 qt.)	(33 4 qt)	(37 2 qt)

* Total amount for 7 months 247 3 quarts average daily amount 38 5 ounces largest daily output Feb 3 56 ounces previous occupation housemaid primipara unmarried

In most instances the breast milk is used immediately after pumping When an excess is obtained, it is transferred in sterile bottles to the refrigerator in the milk station, where it is kept until needed The breast milk is reserved for those babies who are desperately ill and require to be tided over critical periods, for those suffering from marasmus, due to food disturbances or infection, to the premature babies, and to all who have been operated on for pyloric stenosis The milk is administered in the same way that any formula is given Those who are not too weak receive it from the bottle, those who are premature or too feeble to nurse are fed with the medicine dropper, the spoon, or by the Breck feeder, still others are fed by gavage

We believe that the food for the wetnurse herself during lactation should be sufficient but not excessive It should consist, as nearly as possible, of the food to which she has been accustomed in her normal environment It would be a mistake, for example, for a woman who had been previously fed on a simple diet of meat, potatoes and coarse bread, to be changed suddenly to a diet consisting largely of unaccustomed delicacies It would be absurd to expect her to secrete milk normally under such conditions The view that certain foods ingested by the mother derange the quality of the milk is probably fallacious For instance, it has been shown experimentally, after feeding a wetnurse a large quantity of fat, such as bacon or cream, that the fat content of the milk remained unchanged It was not the milk but the wetnurse herself that increased in fat

At the Sarah Morris Children's Hospital, the wetnurse receives an abundance of good, wholesome food taken at the regular meal times In addition, she receives a glass of milk every four hours of the day and night The following is the menu used in feeding the wetnurses

8 a m, cereal, fruit, milk, rolls, cocoa or tea and eggs

12 m, soup, meat, potato and one green vegetable, cereal, pudding or ice cream, and occasionally cookies

6 p m, meat, vegetable, cereal, stewed fruit and tea or milk

Fruit forms an important part of the diet Raw fruit is permitted, though stewed fruit is usually preferred The fruit counteracts the tendency to constipation and avoids the necessity for laxatives The nurse is encouraged to drink an abundance of water

Particular attention is paid to the hygiene of the apartments occupied by the wetnurses and their babies The rooms are kept scrupulously clean, overheating is avoided and proper ventilation is controlled The personal hygiene of the wetnurses is carefully supervised It is insisted that they shall bathe regularly and that they shall be attired at all times in clean clothes Aprons or dresses made of washable material are worn, designed so that the breast may be easily exposed without causing undue pressure As it would be difficult for the hospital to keep on hand a supply of clothes which would be properly fitting to all, each wetnurse provides herself with cotton dresses, which in most instances consist of light bungalow aprons which open in front on one or both sides

The wetnurse is given ample time to sleep She retires at 9 p m and rises at 8 a m She arises late because it is necessary to disturb her during the night in order to obtain the milk Her own baby sleeps in the apartment with her, though in a separate bed We do not permit her to nurse her baby at night If the baby requires food in addition to that supplied by the breast, artificial feeding is provided for

Each wetnurse is given some leisure in the afternoon between the milking periods During this time she may exercise or rest She is required, however, to return to the hospital promptly at the hour at which the milking is done If she goes out for a walk, she takes her baby with her, this precaution helps to keep her out of mischief She is not allowed to leave the institution after dark, and is required to be in her room by 8 p m On the whole, the mother is usually well satisfied with her situation She has her own baby with her and is learning to care for it properly This increases the interest in her work and undoubtedly renders it less irksome

It was formerly considered that the appearance of menstruation was a signal to wean the baby, but our experience in this regard accords with that which is commonly stated, namely, that menstruation has little effect on lactation and none on the permanent quality of the milk During the first day or two the baby may show a temporary disturbance, it may be restless, refuse the food, or show signs of mild dyspepsia, with vomiting and diarrhea Statistics show that 50 per cent of women are amenorrheic, 43 per cent menstruate, and of these 20 per cent have regular periods during lactation In a word, then, many women menstruate during lactation without producing any permanent deterioration of the milk or any serious symptoms on the part of the baby

The duration of lactation may continue for a long time, particularly if the stimulation to the breasts is maintained As a rule, however, the milk tends to deteriorate toward the end of the first year, so that wetnurses usually are not retained after they have been with us for nine or ten months At one time a wetnurse remained with us for eighteen months The quantity and the quality of the milk were so exceptionally good that we hesitated to part with her at the end of the customary period At the present time, one of the wetnurses at the hospital has been in service for eight months, and her supply shows no sign of diminishing She produces as high as 56 ounces in twenty-four hours, in addition to that which she gives her own baby The average daily amount which we obtain from each wetnurse, excluding that which she gives to her own baby, is about 37 ounces

The accompanying tables indicate the daily quantity of milk expressed by the wetnurses which is available for use

TABLE 3—DAILY QUANTITY OF MILK EXPRESSED BY WETNURSE B R *

Day of Mo	Oct oz	Nov oz	Dec oz.	Jan oz	Feb oz.	March oz.	April oz.
1	31½	41	42	42	47	40½	39
2	39	43½	40	40	40	39½	40½
3	39	40¾	42	41	40	41	41½
4	36½	41	43	40	44½	39½	39
5	37	43½	40	42		39½	39
6	37	39	47	44	28½	41	39
7	46	42	50	49	38	39½	41½
8	44½	42	44	44	37½	39	39
9	41	42	45	44	37	40	39
10	41	40	45	40	39	39	39
11	42	37	40	41	36	39½	39
12	47½	41½	39	43	40½	39½	39
13	41	40	44	40	40	39½	39
14	47	40	40	49	40½	40½	42½
15	40	40	38	51		39½	39
16	48½	39	38	40	42	39½	39
17	43	41	43	41½	43¾	39	39
18	39	42	41	42	44	39	49½
19	39½	46	45	39	47½	39	39½
20	41	42½	39	41½	39½	41	39
21	46	41	43	40	43½	39	40½
22	39	41	38	37	43½	39	39
23	47	43	39	36	43½	39½	38½
24	41	41	38	42½	42	39	39
25	43	43	39	38	39½	39	41
26	43	41	43½	37½	41½	40	39
27	45	44	41	38	44	38	46
28	44½	42	40	39	40½	39	47½
29	45½	43	39	39		39	49½
30	45	43	39	40½		45	47
31	41		40½	40½		39	
Totals	1,301 (40 67 qt)	1,245 7 (38 9 qt)	1,285 (40 16 qt.)	1 282 (40 06 qt)	1 063 (33 2 qt)	1,230 (38 4 qt)	1,2[illegible] (38 3 qt)

* Total amount for seven months, 270 2 quarts, average daily amount 41 1 ounces, largest daily output, 51 ounces, previous occupation housemaid, primipara, unmarried.

Civilization—The prevalence of avoidable misery, and the direct encouragement afforded by society to all kinds of morally unworthy activities, are such prominent features of every modern community, that only a very strained use of the word "civilization" would make it truly applicable to such communities—*Scientific American*

PROBLEMS CONNECTED WITH THE COLLECTION AND PRODUCTION OF HUMAN MILK *

B RAYMOND HOOBLER, M.D
DETROIT

The failure of many mothers to secrete a sufficient quantity of milk to nourish their babies has been the subject of much discussion. Little has been written on the ability of many mothers to produce milk far in excess of the need of their offspring. This ability to produce an excess quantity lays on us the responsibility for its utilization, especially in view of the fact that many infants would thrive much better if at least a portion of their food could be supplied by human milk.

In our country it is estimated that 2,500,000 babies are born yearly, and with each birth there is the potential mechanism for supplying the necessary nourishment during the first nine months or a year. We have here not only a great life-giving provision, but also one of great economic importance. It is reported by Lucas, in his recent work in Belgium, that he found that many more mothers were nursing their babies during the past three years than previously. It is also recalled that during the siege of Paris, it was reported that maternal nursing was the rule; hence under the stress of great economic necessity such as insufficient or improper food for feeding their babies artificially, mothers have found their breasts adequate to the demand. We earnestly hope that no such economic situation in our country will be necessary to force our profession and our mothers to an appreciation of the great waste which is permitted, when a breast which can produce should be permitted to dry up, or when one which has the possibilities of abundant production is permitted to produce milk only for the mother's own offspring. It has always seemed to me that, taking into consideration the breasts that fail or perform their function inadequately, and those that produce normally or abundantly, if some system could be evolved, simple in its application, whereby these mothers with abundance could supplement those who have a scant supply, it would be a great factor in reducing infant mortality as well as preventing a great economic waste.

For hundreds of years the accepted medium for performing this service has been the wetnurse, this wetnurse in the early times being a good samaritan neighbor or friend, who out of pity and from her abundant supply, suckled a motherless babe. Later, the professional wetnurse came into being, who for purely monetary reasons was willing to allow another baby to nurse at her breasts. Wetnursing has always been an uncrowded profession, though one which offered unusual financial remuneration. This is so, no doubt, owing to the inborn modesty surrounding motherhood, and far be it from me to wish it to be otherwise. There seems to be as much hesitancy on the part of a mother to permit her babe to nurse at another's breast as there is on the part of the mother to permit another babe to nurse her breast.

The attempt of our profession to depend only on the wetnurse as a medium of this exchange has, I believe, greatly retarded the more general use of mother's milk as a part of the diet of infants who do badly on artificial feeding. Often the home is not equipped to care for the wetnurse and her baby; often the home cannot afford the additional expense; many times the baby needs only a small amount of mother's milk daily; if the wetnurse is taken into the home she frequently disrupts the entire household. I believe there is a far better way of handling the situation. It does away entirely with the home difficulties and solves in a measure the economic problem.

Some years ago I conducted an investigation to determine whether or not mother's milk could be purchased on a purely commercial basis. Through the active cooperation of the social service department of Bellevue Hospital it was proved that such a thing was possible, and at the close of the investigation as much as 1,000 ounces per month was being purchased by Bellevue Hospital.[1]

COLLECTION AND DISTRIBUTION OF MOTHER'S MILK

I wish to describe briefly a method which I believe could be made available in every city or town which is equipped with a hospital, be it small or large. If several hospitals exist in a community the hospital conducting the largest obstetric service would be the hospital of choice for the establishment of a collection and distributing center.

In Detroit, in connection with the Woman's Hospital and Infants' Home, we believe we have an ideal place for conducting this work, having collected and distributed over 23,000 ounces of mother's milk in the last six months. It is important to have the milking of the breasts done under the supervision of a trained nurse. While in our work we have not detected any mothers attempting to make substitution or to water their milk, because of this careful supervision, yet it is related how a bottle of milk which was brought in, or milked without proper supervision, turned sour within an hour. If the milking had been done under the eye of a competent nurse, such an occurrence would have been impossible.

The hospital admits to its service, in addition to a large number of private obstetric patients, a number of young unmarried pregnant women who for a small fee are delivered and cared for during a period of three months following delivery. These girls are taught to take care of their own babies, and in addition perform light service about the home. It is the aim that every mother shall nurse her own baby. If she has more than sufficient milk, it is expressed and fed to babies of mothers who do not have sufficient. From among these mothers many are found who produce much more than is necessary for their babies, and this forms the basis of an excess quantity of human milk which is available for use outside of the hospital. All mothers are carefully tested as to their physical condition, Wassermann reactions are taken, and all expressing of breasts is done under the eye of a trained nurse who teaches the mother the technic of expression. The milk is collected in sterile bottles, measured, credited to the account of the mother, and then put in a refrigerator. During the period of stay in the hospital, the mother accumulates a neat sum to help her when she must go out into the world with two to support, and at the same time has been taught the value

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* Read before the Section on Diseases of Children at the Sixty-Eighth Annual Session of the American Medical Association New York, June 1917

[1] Hoobler B R. Experiment in Collection of Human Milk for Hospital and Dispensary Uses Arch. Pediat 1914 **31**, 171

of her breast product and has lost the hesitancy of supplying it for other babies

Through the active manipulation of the breasts, done as a rule every four hours, the breast secretes an increasing quantity of milk, and at the end of the three month period, if the mother has developed a good milk-producing capacity, that is, from 16 to 24 ounces above the amount necessary for her own baby, she is urged to continue in the hospital as a producing mother, or if she has suitable home surroundings in the city, she is urged to continue milk production as a means of earning her living, in which case she returns to the hospital two or three times daily for expressing her milk In this way many mothers are able to support themselves and their babies until such time as they regain confidence or their homes are again thoroughly established Other nursing mothers not connected with the hospital are appealed to by advertisement in the daily press and by placards in dispensaries, in several languages, stating that mothers who have an excess of milk may find remunerative employment, while remaining at home, by applying at the distributing center

These mothers are visited in their homes, and if the homes are found suitable and their physical examination and Wassermann test are negative, they are placed on the list as contributing mothers, they come to the hospital twice daily and have their breasts expressed, the milk supply is well maintained by two expressions, particularly if the breasts are suckled between times The babies of the mothers are examined and weighed regularly The homes of the outliving producing mothers are inspected regularly as to cleanliness and infections The work of distribution is as important as that of collection The milk collected was distributed in the following ways

A portion of this milk was used to feed the babies in the hospitals whose mothers temporarily did not supply sufficient for them

A large proportion was supplied to homes on orders of physicians, to whom it was sold at a price varying from 10 to 25 cents per ounce Some was supplied without any cost to families who could not afford to pay for it An advertising campaign was carried on through medical organizations to interest physicians in the use of mother's milk No advertising was sent out except to physicians

The residue left after supplying the private demand was sent to the Children's Hospital and hospitals having children's wards that were under contract to take all excess milk at a flat rate of 10 cents per ounce Thus none was ever wasted

The milk is sent for regularly by the families using it Occasionally delivery is made by special messenger Milk is never delivered to a house by the mother direct Usually two distributions are made daily, at 9 a m and 6 p m The distributing center is always open, and milk may be obtained *at any hour, day or* night, the night superintendent of the ward acting as custodian during the night

Under suitable circumstances, mothers are sent into the homes with their babies as occasion requires If this is done, a negative Wassermann test must be obtained on the receiving baby, or in lieu of this, a statement from two physicians that the baby is free from disease, and a release of responsibility for possible infection of the wetnurse is signed by the parent of the baby receiving milk direct from the breast of the wetnurse Occasionally a mother continues to live at the hospital or in her own home, and spends the day at the home nursing the baby direct on the breast and expressing sufficient milk during the day so that the baby may be fed from the bottle at night Every possible contingency is met by this versatile manner of conducting the bureau

The organization necessary to carry out such a center may be very simple

In a small hospital, a joint committee from the board of trustees and members of the hospital staff might be the functioning organization In larger cities a joint board of pediatricians and social workers might cooperate in the establishment of such a center There should be a paid social worker in charge if the work grows to any proportions

The necessary qualifications for a producing mother *are that she be healthy, with a double negative* Wassermann test Her own baby should be making average daily gains Her home should be tidy and her personal habits clean Analysis of her milk should occasionally be made The period of her production may be prolonged to fifteen or eighteen months, Holt, Courtney and Fales[2] having shown that the average milk production between the ninth and eighteenth months varied very little from that produced between the sixth and ninth month The milk of several mothers may be mixed, or milk from individual mothers may be supplied if requested by the attending physician

A word from the standpoint of the pediatrician enjoying the privileges of such a human milk supply During the past winter I have had occasion constantly to make use of this supply I have found that it was often far more satisfactory to have the milk brought from the hospital than for a wetnurse to live in the home I seldom fed the entire day's feeding in mother's milk, although in some cases this seemed necessary, particularly in premature infants who did not consume large quantities It has been my experience that babies receiving mother's milk from the bottle did as well as those being fed directly from the breast By bringing only the milk into the nursery, rather than the wetnurse, it seemed to me that the chances of introducing infections were lessened

DIET OF THE MOTHERS

An important factor in keping the milk production of these mothers to the maximum is diet From the fact that these mothers remain in the hospital for a period of three months after delivery on a diet prescribed by the hospital, it is of great importance to outline a satisfactory diet for them Many young mothers fail during the first two or three weeks

This was brought forcibly to my attention in the infants' service of the Woman's Hospital, where opportunity was given for accurate weighings to determine the amount of milk produced by each mother, it was not uncommon to find a mother giving her baby as little as 10 ounces daily at the end of three weeks, with the result that the baby's weight was at a standstill, necessitating temporarily the giving of supplementary feedings

A study of the diet and regimen of these mothers was undertaken, and it was found that with some modifications of the diet nearly all the mothers were able to supply all the milk necessary to keep their babies gaining the usual weekly amount

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[2] L E Holt, A. M Courtney and H L Fales (Am Jour Dis Child, October, 1915, p 238), speaking of milk produced during the tenth to twentieth month of lactation, say "As a group the milks for this period show no constant or essential differences in any of their constituents from those of the *mature period*' (first to ninth month)

In a large service such as is maintained at the Woman's Hospital where the mother remains for such long periods (three months or more after delivery), the problem of supplying a diet suitable for maintenance of the mother and production of sufficient milk to nourish the baby satisfactorily is one of considerable economic importance, particularly at this time A study of the literature on this subject revealed what seemed to me to be a very inadequate fundamental knowledge regarding the quantity and kind of food—particularly protein food—best suited to the production of human milk Studies such as are here described relating to the production of human milk have been carried on for some years past by the observers in animal husbandry, and a great amount of data on the proper feeding of cows for the maximum milk production has been obtained, such knowledge has become the common property of all dairymen It seemed, therefore, that a series of observations attempting to determine some fundamental principles involved in the production of milk in the human species might be undertaken

The literature on the subject as it relates to human beings is exceedingly scant, but several careful pieces of research have been conducted on other species producing milk, the cow, the goat, the dog, for example, have been studied and a careful analysis made of the intake, excretion and retention, establishing for these animals certain facts which may generally be considered as true for the human being E B Hart and G C Humphrey, working with cows, have added the most recent contribution to our information They have shown that for cows not only the quantity, but also the biologic quality of protein has a marked effect on the milk production Proceeding somewhat along the same lines they followed in obtaining their results, we observed several mothers over a period of three months using diets with varying quantities and kind of protein in connection with suitable fats and carbohydrates, and estimated accurately the nitrogen food intake, and the nitrogen excretion in the urine, feces and milk, also careful analyses of the fat, solids and caloric value were made and the quantity of milk was determined The fluid intake and weight of the mothers was kept The milk was expressed by the hand method and accurately measured Each baby was fed on its own mother's milk given in a bottle, and the babies gained considerably in weight The mothers were ideal for observation, accepting the diets willingly and cooperating in every way At no time during the observation did anything occur to disturb the even tenor of their ways

We elaborated several diets which, according to the most recent analysis, were estimated to contain protein to fat and carbohydrate in the ratio of 1 4, gradually widening this ratio until protein was to fat and carbohydrate as 1 15 These diets varied also in the number of calories fed in twenty-four hours and also in the biologic type of protein which was supplied Certain diets were rich in meat protein, others in milk, cereal or nut protein With these diets as a basis, we studied the milk production on each diet over periods of from four to seven days Each mother was given identically the same food (all of the food was carefully weighed), but the quantity of water differed, each mother being allowed as much water as she desired

The results as relate particularly to the nitrogen intake and output were reported at a recent meeting of the American Pediatric Society This paper concerns itself particularly with the quantity and caloric value of the milk produced on these diets with especial reference to the biologic character of the protein best suited for human milk production

TABLE 1—DETAILS OF PRODUCTION

Diet	Ratio Protein Fat and Carbohydrate	Ratio Fat and Carbohydrate	Calories Fed	Milk Produced C c	Calories	Protein in Milk per Cent	Fat in Milk per Cent	Total Solids per Cent	Sp Gr of Milk	Nitrogen Efficiency per Cent	Food Calories in Milk per Cent	Source of Protein in Diet, per Cent
9	1 4	1 1	2,927	1,522	968	0.02	3.0	11 60	1 030	48 5	33	Meat 40 5 cereal 21.2 milk 1 " vegetable 12 1 eggs 10 5, hypophosphites
9 7	1 4 1 5	1 1 1 1	2,927 2,842	1 630 1 456	1 102 962	1 01 0.89	3 0 3 0	13 1 11.80	1 029 1 029	49 6 13 9	40 33	Same as above Same as above except that malt extract was given instead of hypophosphites
7 10	1 5 1 5	1 1 1 1	2,842 2,670	1 751 1 758	967 1 006	1 03 0.97	3 0 3.6	12.0 11.80	1 030 1 027	20 4 5.3	34 41	Same as next above Pure vegetable diet nuts 66 2 vegetables 17 7 cereals 14.5, fruits 1.3
10 1	1 5 1 6	1 1 3 2	2,670 3,767	1,620 1,475	1,272 1,042	1 09 0.83	3 6 3.9	16.40 13 10	1 027 1 029	13 5 35.8	50 27	Same as above Milk 22.5 cereals 33.55 meat, 21.5 vegetables 11.5
1 6	1 6 1 6	3 2 1 1	3 767 2,774	1 445 1,329	1 071 1 000	1 18 0 79	3 0 2.4	10 00 9.50	1 029 1 028	43 0 —3 0	23 25	Same as above Meat, 40 cereals 21 milk 15 7, vegetables 12 1, eggs, 10.5
6	1 6	1 1	2,774	1 571	1,209	1 01	2.7	12.30 11 60	1 029 1 030	+2.8 —1 4	45 21	Same as above Meat 27 7 vegetables 19.8 cereals 18 1 milk 14.5, nuts, 9 4 eggs 8.5
2	1 8	2 3	3,446	1 425	835	0.97	3.0					
2 3	1 8 1 9	2 3 1 4	3 446 3,503	1,375 1,370	638 624	1.01 0.81	3 4 3.3	10 00 11 10	1 028 1 029	+20 7 11 1	20 23	Same as above Pure vegetable exc milk cereal 60 5 milk 23 9, vegetables 14 2 fruits 1 4
3 5	1 9 1 9	1 4 1 1	3,503 2,068	1 174 1,475	766 1 014	1 02 0.89	3.0 3.3	12 00 13 00	1 030 1 029	22 0 —104 0	21 45	Same as above Meat 32.9, vegetables 19 8 milk, 19 6 cereal 14.8 eggs 12.0
5 8	1 9 1 13	1 1 1 4	2,058 2,286	1,536 1,507	945 786	1 07 0 90	3 0 3.6	11 00 11.50	1 030 1 029	—70.5 —8.6	45 34	Same as above Pure vegetable diet cereal 54.2 vegetable 40 3 fruits, 5 5
8 4	1 13 1 15	1 4 2 1	2,286 3,634	1,580 1,362	973 970	0.98 0.89	3 6 3 6	12.8 13 1	1 030 1 028	—102.8 —2.2	42 27	Same as above Milk 37 1 cereal 28.2, vegetable, 18 6 meat, 10.5 nuts, 5 6
4	1 15	2 1	3 634	1 416	1 059	1 04	3.0	13.5	1,030	—30.2	29	Same as above

That there is a biologic difference in the various proteins in their effect on growth has been shown by many observers, particularly by Osborn and Mendel[3] and most recently by McCollum[4] That the same principles involved in growth might also obtain in milk production in cows was suggested by Hart and Humphrey,[5] who have reported several admirable pieces of work which show conclusively that the biologic character of the proteins, as well as their quantity, has a marked effect on the milk protein production in cows Observations on nursing mothers as similar as possible to those made on dairy cows were carried on, and in instances in which conditions could be approximated, the findings were in general the same as found by Hart and Humphrey

The details of production are set forth in Table 1, and from these findings it is possible to estimate which proteins or groups of proteins were most efficient in milk production in the mothers observed In attempting to determine the efficiency of any diet fed, factors which must be considered are (1) quantity of the milk produced, (2) caloric value of the milk produced, and (3) loss or gain of tissue of the mother producing the milk

In Table 1 are submitted the details of the observations which cover these points From the standpoint of quantity of milk, Diet 10, made up of nut protein supplemented by vegetable protein only, produced an average of 1,234 calories, over a hundred calories above any other diet, also an average of 1 689 c c of milk in twenty-four hours From the standpoint of protection of maternal tissues, one of the mothers showed a nitrogen efficiency of 5 3 per cent, and the other of 13 8 per cent Thus in the three essential standards Diet 10 produced the best results It is not intended to convey the impression that this diet would always accomplish the same good results, for while it produced the same general results in each of the mothers under observation, a much wider application of such a diet must be undertaken before a definite decision can be reached, but such were the findings in this observation, and it is for those interested to test it clinically

The actual ingredients of the diet are given in Table 2 The diet contained approximately 2,670 calories The ratio of protein to fat and carbohydrate (all reduced to basis of calories) was 1 5 The actual grams of protein ingested was 104 68, yielding 16 75 gm of nitrogen Of this intake 89 per cent was absorbed The mothers took the diet readily, and in fact enjoyed it

TABLE 2—INGREDIENTS OF DIET 10 (NUT DIET)

	Gm		Gm
Malted nuts	100	Chocolate	8
Protose (nut product)	150	Bread	200
Pecans	25	Potatoes	200
Almonds	25	Lima beans	100
Walnuts	25	Peas	200
Peanut butter	50	Bananas	100
Cocoa	8	Apple sauce	50

This diet demonstrates that the biologic character of vegetable protein, particularly if composed largely of nut protein, is not incompatible with a production of milk protein whose biologic character is entirely different

This does not hold true when a pure vegetable diet, such as Diet 8 from cereals, vegetables and fruits, is given This may be suitable for building into human milk protein, but it is exceedingly difficult to feed a sufficient amount of protein in such a diet, although the insufficiency of these proteins for milk protein production was concealed by the mothers by their ability to metabolize their own tissue proteins and maintain secretion at a high level

On a diet composed of corn and gelatin, both of which are deficient in certain of the amino-acids, the quantity, but not the quality of the milk production was maintained This diet, however, was accompanied by marked negative nitrogen balances, thus demonstrating the ability of the human being to compensate at least temporarily for the deficiencies in the biologic structure of the proteins fed

TABLE 3—INGREDIENTS OF DIET 9

	Gm		Gm
Oatmeal	150	Rice custard	100
Bread	200	Cocoa	4
Butter	25	Apple sauce	50
Round steak	150	Lima beans	100
Eggs	100	Sugar	50
Potatoes	200	Cream 20 per cent	100
Milk	500	Spinach, squash or carrots	100

* A compound syrup of hypophosphites, ½ ounce, three times a day was given before meals

Thus we may well conclude that the protein in a pure vegetable diet (not including nut diet) is both insufficient and inefficient for the maximum production of milk protein

With the exception of the nut protein diet, the other biologic forms of protein best adapted to milk production were derived from animal protein, and consisted of a mixture of meat, milk and egg protein, with an added quantity of cereal and vegetable protein composing about one third of the available protein This diet showed high efficiency from the standpoint of quantity, calories and maternal protection The total quantity of milk was 1,576 c c, calories produced 1,130, and both mothers remained in positive nitrogen balance The diet is given in Table 3 It approximated 2,927 calories It contained 130 gm of protein yielding 20 64 gm of nitrogen The sources of the protein were meat, 40 5 per cent, milk, 15.7 per cent, eggs, 10 5 per cent, cereal, 21 2 per cent, vegetables, 12 1 per cent

As to the question of which of the biologic forms of animal protein is best suited to milk production, it would appear that milk protein has a particularly high value in this regard, as demonstrated in Diet 3 In a diet of a rather wide ratio, 1 9, milk protein was the only form of animal protein fed, and constituted 23 9 per cent of all protein fed Yet this quantity of animal protein was able to convert what would otherwise have been a marked negative balance into one with a positive nitrogen efficiency of 17 per cent In another instance, a diet containing a small amount of milk protein with a nitrogen efficiency of 47 per cent was increased to a nitrogen efficiency of 74 per cent by the addition of 250 c c of milk

Other factors, such as total number of calories, the proportion of protein to other ingredients, and also ratio of fat to carbohydrates are important

The number of calories fed in the diets used varied from 3,764 to 2,088 Four of these diets varied from 3,400 to 3,700 The average amount of milk produced daily on these diets was 1,380, with an average of 1,033 calories in the milk Four of the diets varied from 2,600 to 2,900 calories The average milk production in twenty-four hours on these diets was 1,576 c c, with an average caloric value of 1,103 calories in twenty-four hours The mothers were more frequently in nitrogen balance on the diets varying from 2,600 to 2,900 calories than when fed diets varying from 3,400 to 3,700 In two of the diets, calories varied from 2,088 to 2,286 On the average, the amount of milk produced in twenty-four hours was 1,501 c c, but in caloric value it was decidedly below the average, being but 929 The mothers were in constant negative nitrogen balance These low caloric diets were constructed to approximate diet lists obtained from several nursing mothers whose milk supply, while fairly abundant, did not satisfy the needs of their babies It is evident that even though on a low caloric diet the quantity may be maintained, yet the quality of the milk must of necessity deteriorate as the reserve of the mother is used up It seems to me that this is one of the frequent causes of failure of supply In order to consume 2,600 calories in twenty-four hours a mother must devote herself to the task, while the consumption of from 2,000 to 2,200 may be easily accomplished on her part I am convinced that the diet of the first three or four weeks of the puerperium is based too much on what might be called sick room specialties, broths, gruels and titbits of one kind or another which are not sufficient to support an increasing production of milk

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[3] Osborn and Mendel Bull 156, Pub Carnegie Inst Washington, 1911

[4] McCollum, E V The Supplementary Dietary Relationships Among Our Natural Foodstuffs, The Journal A M A, May 12, 1917, p 1379

[5] Hart, E B, and Humphrey, G C. Jour Biol Chem, 1915, **21**, 1916, **26**, 457

It seems to me rather that the mother should be considered as a normal individual whose diet must include sufficient for two The fear of carrying over in the puerperium an ante partum albuminuria deters many mothers from eating as freely of a mixed diet as they should It is true that the maternal tissue will give up of its protein and its fat and glycogen to supply the constituents, but when these are depleted it cannot be continued indefinitely, and the diet must be commensurate with the need The proportion which the protein of the diet bears to the fat and carbohydrate of the diet also has much significance It varied in the diets used from a ratio of 1 4 to one of 1 15 These ratios refer to the proportion of digestible protein to digestible carbohydrate and fat, the latter reduced to a carbohydrate basis

The diets accounted the most efficient were based on a narrow nutritive ration of 1 6 or narrower It is difficult to feed a diet containing a wide nutritive ratio, for example, 1 15, without either feeding too little actual protein or, if the protein requirement be maintained, overfeeding with fat and carbohydrate The protein proportion of the diet is best supplied by animal protein and least satisfactorily by vegetable protein with the exception of nut protein, which seems in every way as suitable for elaborating milk protein as does animal protein There seems to be considerable evidence that at least a certain amount of milk protein is an important ingredient of the efficient diet In general one may state that a generous mixed diet, including nuts, milk, meat, eggs, with cereals, vegetables and fruits constitutes a diet containing the potential factors for the maximum milk production

SUMMARY

1 A diet to be efficient must produce a sufficient quantity of milk, containing nutrition adequate to cause an increase in growth of offspring without impairing the tissues of the mother

2 Diets containing from 2,600 to 2,900 calories in twenty-four hours produced better results than diets containing from 3,400 to 3,700 calories It is of no avail to overfeed in hope of maintaining or increasing the milk supply

3 Diets containing 2,000 calories or less cannot protect maternal tissues and at the same time produce sufficient milk A nutritive ration of less than 1 6 give best results

4 Animal protein is better than vegetable protein for purposes of milk production

5 Nut protein is as efficient as animal protein in elaboration of milk

6 The best form of animal protein to protect maternal tissue and increase milk production is cow's milk protein

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS SEDGWICK, ABT AND HOOBLER

Dr Fritz B Talbot, Boston Too much attention cannot be given to this subject because until recent years there have been few hospitals that have had enough wetnurses for their babies I believe every hospital with an infant's ward should have at least two wetnurses I want to emphasize again what Dr Abt said about watching wetnurses when they are expressing the milk There should be some responsible person in the room at the time In the directory for wetnurses of the Infants' Hospital Boston, cow's milk and water have been added to bring up the amount of milk

Our technic is the same as Dr Abt's except that the milk is strained through sterile gauze before being put in the bottle After it is put in the bottle a stopper of sterile cotton is put in, and the stopper is sealed with wax. If there is any tampering with the bottle the wax will be broken This is merely a safeguard

I want to draw attention to something that impressed me in Schlossmann's clinic in Dusseldorf When Schlossmann has more human milk than is needed, he freezes it and puts it in vessels where it is kept in a frozen condition until it is ready to be used. He says that it gives no untoward symptoms when it is melted, and its use has proved satisfactory

There is often a great mistake made by the practicing physician in considering that breast milk is not good when the wetnurse's baby is over a year old I want to emphasize what Dr Abt said about continuing to use a wetnurse even if the baby is over a year old, because other babies do perfectly well on her milk, even up to eighteen months In other countries, Japan in particular, women often nurse their children for three or four years One important phase of the wetnurse problem is the social side of it It is important to keep the baby with the mother, in order that the baby may have a fair opportunity to live. When separated from the mother, the child's chance for life is not very good, whereas of those kept with the mother at least 95 per cent will live and thrive. Aside from the social element, the mother always secretes more breast milk when she has her baby with her, because she is happy This is an important reason for keeping the baby of the wetnurse with her

I should not like to have this discussion close without some one saying that every wetnurse should be examined for tuberculosis and any other contagious disease ruled out I am sure that every one present does that, but we want at least to say it in the discussion

Dr. Lewis M Silver, New York Regarding the age of the period of wetnursing, a cousin last summer took a trip through the Hudson Bay country, and when he returned he showed a picture of a Labrador woman nursing a baby of 4 years He said that was a common occurrence up there They nurse their babies sometimes up to 5 years

Dr. Jacob Sobel, New York My interest in the wetnurse problem is rather from the community standpoint Being in charge of the baby welfare work of New York, and in control of fifty-nine baby health stations I am interested in anything which makes for the reduction of infant mortality We have met many obstacles in securing wetnurses for the people who make demands on us. The result is that we have been compelled to resort to certain measures from a municipal standpoint, which, if applied to other communities, might result in increasing the number of wetnurses available. Our procedure is this: With the number of yearly births in New York 137,000, and some 40 per cent. of birth registration in the control of midwives, it becomes necessary that the midwives report every case of stillbirth. Immediately on notification, we visit the home of the mother who has given birth to a stillborn infant, and after examination, of course, ask her whether she would be willing to wetnurse an infant. In this way we have been able to establish a directory at the health department and to have a larger number of wetnurses available than ever before. The bureau of records, on receipt of notification that an infant under 1 year of age has died, communicates with the mother and makes a similar request. With these two methods of procedure we find that the monopoly of wetnursing in New York City is rapidly disappearing. I think a procedure of that kind if applied to other communities would increase the available number of wetnurses.

In New York City there is a neighborly feeling, which may not appear so evident to people who come from out of town, but among Italian and Jewish people it is not at all uncommon for a neighbor who has a large supply of breast milk to be perfectly willing to give part of it to a neighbor's youngster who is suffering from one of a large number of conditions such as Dr. Abt brought out.

The question of maternal nursing is rather an important one from the baby health station point of view. We have been criticized, as have all baby health stations, as tending toward artificial feeding. I would like to say here that at the baby health stations of this city over 60 per cent. of the infants enrolled are exclusively breast fed, and some 19 to 20 per cent. more, partly on the breast and partly on the bottle, so that the efforts of the baby health stations are primarily educational, and they may endeavor always to encourage breast feeding.

We have had cases similar to those referred to by Dr. Sedgwick, in which mothers say they cannot nurse their babies. Sometimes they come to us after six or eight weeks and by insisting that the baby be applied to the breast, we have succeeded in numerous instances in materially increasing the supply.

I would like to ask whether any present have tried injection of breast milk subcutaneously as a galactogogue. We are trying it in a few cases—going about it very guardedly. While my experience is not sufficient to make any statement, I should welcome any information.

Dr. L. E. Chappelle, Grand Rapids, Mich.: I tried it once, with very encouraging results.

Dr. Jacob Sobel, New York: Dr. Chapin in his article on "Institution vs. Foster Mother Care" advocated "back to the home." I hope the contribution of this section to the mothers of the country will be "back to the breast."

Dr. George Dow Scott, New York: Those of us who have been brought up in the hospitals of Europe and have studied pediatrics while in them, have noticed the great differences between the status of the wetnurse there and here. These conditions and differences were noticeable to me particularly in Vienna and Budapest, where the social status of the unmarried, impregnated woman—for a large part of these women are unmarried—aroused less observation and criticism. In the larger cities of this country, particularly in New York, Boston and Philadelphia, this criticism is less severe than in our smaller cities, and we therefore get better wetnurses.

Dr. Charles Herrmann, New York: There is one important point in the case of the wetnurse attached to the babies' ward. It is important to know just how much it costs.

Dr. Owen H. Wilson, Nashville, Tenn.: I have been using this method for over twenty years. I am glad to see expressed breast milk is coming into vogue. I find it easy enough to get a woman to go to a home twice a day. If enough cannot be secured from one, herd milk is just as good as individual. The wetnurses have to be watched, however. We have had them carry bottles of milk in their bosoms and empty them into the receptacle. I have used one wetnurse on twelve babies in one season. I have her stay with each baby three or four weeks until we get it on some other food.

Twenty years ago we did not have the Wassermann, and the methods of determining syphilis have much improved. I do not believe, however, that breast milk can convey syphilis. I do not believe the spirochete will live in drawn breast milk, especially if kept cold. Of course I examine patients now, but I was speaking of pre-Wassermann days.

Dr. Charles L. Summers, Winston-Salem, N. C.: In reference to the age of the wetnurse, in Vienna and Berlin, where I worked in 1911 and 1912, we had several wetnurses over a year nursing in whom the quality and quantity of the milk were both satisfactory. At present, in the Garret Hospital in Boston where I am serving, we have a wetnurse with a child 10 months old, and she is regularly giving 57 ounces of milk a day. There is one feature I wish to call attention to, and that is that the milk under these conditions is usually high in protein and low in fat, and for this reason its caloric value decreases. The quantity of milk under such circumstances has to be increased.

Dr. Carl G. Leo-Wolf, Buffalo: These interesting papers belong in the section on obstetrics, but unfortunately obstetricians are not interested in these cases. They keep experimenting with them, and when they are finally turned over to us it is often too late. This subject belongs to the accoucheurs, but they do not know anything about it, and the probability is they do not wish to know.

Dr. J. P. Sedgwick, Minneapolis: I want to take exception to that. I think the babies belong to the pediatrist as soon as the cord is tied.

Dr. Frank S. Churchill, Chicago: I want to ask Dr. Abt to tell us what the mortality in these babies' wards now is, compared with four or five years ago.

Dr. E. J. Huenekens, Minneapolis: For the past two years I have been experimenting with breast milk that has been preserved, that is, heated for one hour at 56 C. with concentrated hydrogen peroxid. We have used this in the outpatient department of the Infant Welfare Society. Mothers collected the milk themselves and brought it to the station, where it was sterilized by the nurse. I have been able to preserve milk three weeks during the hot summer months, and keep it in very good condition. Bacteriologically, breast milk would contain, when it reached us, 300,000 to 1,000,000 bacteria per cubic centimeter. We were not able to sterilize the breast milk, but we were able to keep it at about the same level for three weeks. This preserved milk seems to be as good as the fresh milk so far as results go. The time that it takes for this procedure makes it impractical for an outpatient clinic, but I feel it would be practical in a combined obstetric and pediatric hospital, and during the coming year I intend to try this at the University of Minnesota Hospital.

Dr. L. E. Chappelle, Grand Rapids, Mich.: In Grand Rapids we pay $8 to $12 a week for a wetnurse.

Dr. Arthur D. Holmes, Detroit: Some three years ago we had difficulty in securing wetnurses, and decided to establish a bureau and furnish wetnurses in suitable cases. We placed notices in the local papers and with the members of the profession, asking women who had had stillbirths or lost their babies to register at our bureau, guaranteeing them $7 a week, board, room, and necessary laundry for themselves and child. We soon had quite a number, some of whom came only to have the milk expressed. Milk was sold at 20 cents an ounce and any oversupply was sold to the Babies' Hospital for 10 cents an ounce. By a careful supervision of the social service nurse the bureau has a balance in the treasury. The mothers were instructed, thoroughly examined, Wassermanized, and a guarantee was taken from the family in which the child was to be nursed, for the protection of the wetnurse.

Dr. Isaac A. Abt, Chicago: It is easier to employ a wetnurse in a hospital than in a private family, because in a hospital she is not hampered or worried. I think it is the experience of every one who knows anything of wetnursing in the home, that certain members of the family are apt to domineer and worry the nurse. The best policy is to leave her alone and to spare her all irritation.

Although I have had no experience with the injection of expressed milk as a galactogogue I may say that I have tried almost every galactogogue and have never seen any beneficial effect from any of them In my opinion the only galactogogue is the stimulation of the breasts, and the best stimulant for the breast is the sucking of the baby

I may say in regard to examining women for syphilis and tuberculosis that I laid no stress on this phase of my subject because it is so elementary We examine for syphilis and tuberculosis of course, in every case. In any instance in which the Wassermann test has not been made and we are in desperate need of milk, we boil the breast milk until the Wassermann test has proved it all right.

Replying to Dr Wilson of Nashville we must be extremely careful of the milk of unexamined women Dr W T Watson some four or five years ago read a paper in this section in which he gave an instance of one syphilitic nurse who had spread the disease among many institutional babies It is probable that a specifically infected woman may convey infection through her milk if not through her breast.

We pay wetnurses $8 a week. We do not like to have any one pay them more for it is the middle and lower class people, of no great means, who need them most It is very rare, however, for a woman to receive more than $8 a week In every instance of employment, her baby accompanies her

In regard to the point about drawn breast milk being high in protein and low in fat and caloric values I may say that as far as we are concerned the caloric value of the milk is of minor importance compared with its efficiency as a therapeutic agent. These babies are brought to the dispensary sick. We want to save them, we want to reduce the infant mortality, we want to make a record for our hospital It makes no difference whether the milk is of high or low caloric value, it serves to bridge the baby over a very desperate period and saves its life—that is the point.

Dr Churchill wanted to know about the specific mortality results I cannot, at this moment give specific results I know this, that babies are brought in to us marantic, with cold extremities, on the very edge of the hereafter, and we give them a few teaspoonfuls of breast milk, and keep on giving it, and the babies revive. We do this day after day I do not know what the mortality rate is, but I do know that without breast milk we would lose nearly every one of these desperately sick babies and with it we are in a position to save most of them.

Dr. Thomas S Southworth New York Dr Chapin in a discussion of an earlier paper, spoke of doing away with the institution in favor of having the children cared for in the home. That may come, but personally I believe for the time being in doing what we can in the institution to improve it. The mothers who give birth to babies there should receive such diet that they will be able to nurse their babies This is a question much neglected in nearly all lying-in institutions There is great difficulty in getting a sufficient amount of cow's milk for these nursing mothers to enable them to produce milk. We should wake up to the fact that we are starving the breast fed babies as well as the artificially fed babies, because the mothers do not receive the proper diet.

Dr. Henry I Bowditch, Boston I want to accentuate Dr Hoobler's paper and impress on the minds of all that it is an easy thing to produce a similar group of wetnurses The Boston Floating Hospital was able to procure during the summer from mothers interested, breast milk at approximately 80 cents a quart. It is a possible thing to produce by the proper organization, backed up by tests of blood, etc.

Dr. William P Lucas San Francisco One of the most vital questions which any section can deal with and one which probably every pediatrist neglects more than any other, is the question of infant feeding We have a service which I am glad to see growing—a combination of pediatric and obstetric service. Infants are turned over to the pediatrist as soon as they are delivered. We have had opportunity to study the milk production as never before. It is interesting to note the inequality in the early production of milk. Not only the food has an influence, but the psychologic and mental condition of the mother has a bearing I have studied that very closely, because in all the literature we find it just barely mentioned, that the mental or psychologic condition is a factor I believe it is very important

Take it in a ward where many mothers have illegitimate children The home factor is very important in upsetting the children The social service department in relation with milk supply The social service department is very often able to correct these conditions, these mothers is very often able to correct these conditions, it can often do more good than the diet If the mother is upset mentally, no matter what diet is given her, she will not have milk sufficient in quantity or quality

As to the question of having a wetnurse directly Dr Hoobler very wisely said that he only advertised to the medical profession It is rather a commentary that we should have to advertise to the medical fraternity It is the most difficult thing to get medical men to take up the use of breast milk We have attempted to have the same type of service that Dr Hoobler has so successfully carried on It takes a great deal of money to carry on an institution of that kind, but there is always on hand a sufficient amount of milk

Dr Herman Schwarz New York I have been interested in the problem of securing and distributing breast milk for many years, and have been surprised that there was any great difficulty about it I may say I have been fortunate in being connected with a combination obstetric and pediatric service (outpatient department)

We have about thirty breast fed babies coming to our outpatient department every day We know these babies from long before they are born We know the families—whether there have been any stillbirths or abortions If such is the case a Wassermann test is made on the mother long before the baby arrives Thus, it is perfectly easy to get 20 to 30 ounces of breast milk in an afternoon In summer we pasteurize or sterilize this milk if we wish to keep it any length of time If the mother brings it herself, we simply use the Umikoff reaction to be sure it is human milk We use the milk simply as a therapeutic measure if we need it

I do not think we should go away with the impression that it is good for the health of the woman to nurse for twelve or fifteen months It is not fair to have her nurse so long Considering the effect of diet on milk, I have come to the conclusion that as long as the mother is given a well-balanced diet, with her digestion in good shape, if she gets enough rest, very little can be done to alter the composition of her milk

Dr. Lawrence T Royster, Norfolk, Va The psychology of this condition as has been mentioned is very important I want to bring out one thing along this line Education plays such a very important part in the care of nursing babies, as well as artificially fed babies, that we should look to educational propaganda to accomplish something There are two classes of people who need education—the mothers and the physicians, and in some cases the physicians need it more than the mothers The mothers are being educated through popular articles The bureau in Washington over which Miss Julia Lathrop presides, is doing a wonderful work The mothers are beginning to grasp the situation, they are demanding a more careful supervision of their babies The mothers are educating the physicians—the general practitioner, I am talking about

I should like to sound one note of warning When the mothers are urged to nurse their babies from the standpoint of the babies' health, as well as for economic reasons, the importance of keeping track of that baby's weight is not emphasized sufficiently Frequently mothers come to me with a baby which had weighed 8 or 9 pounds at birth, and at 3 or 4 months of age weighs less As the milk declined in the mother, she became more frightened until she gave less and less milk. We know that the psychology has a great influence on the secretion of milk

The popular magazine articles for mothers serve their purpose admirably if they are written by one who knows, and are properly censored I recently saw an article in one of the most prominent magazines of the country, in a series of articles to the mothers about their babies, in which appeared a beautiful picture of that especial abomination, the white enamel spring scale, with a white basket on it, on which we all know there is no reliance to be placed, and in the basket was lying a beautifully dressed—completely dressed—baby

This article was written by a woman who signed herself as a registered nurse The sooner we get away from the ignorance of such a writer as that, and the appeal to the esthetic in the nursery, and come down to the common sense of a cheap, balanced scale and a nude baby, the sooner we will get results

Dr L. R DeBuys, New Orleans There is one factor which has not been sufficiently emphasized, namely, the use of the scales in connection with the nursing mother's weight We are all familiar with the poor underfed mother who comes to the clinic who is trying to nurse her child Frequently the baby thrives and gains satisfactorily at the expense of the mother, who is losing weight steadily In these cases we are impressed with the importance of the mother receiving a sufficient amount of food, not only for her baby, but for herself as well if they both are to thrive The use of scales for both should be employed in determining this

Dr. Henry Heiman, New York What Dr Hoobler has told us is of great importance It is well to remember that the salts of sodium, potassium and chlorin diminish gradually in mother's milk as lactation progresses, whereas calcium, magnesium and phosphorous salts remain fairly constant

Regarding obtaining the milk, we sometimes find it extremely difficult, unless we instruct the nursing mother to express it properly That is a matter about which people need instruction

Dr. R R Ferguson, Chicago Two interesting points have been brought out in the discussion of these papers One is that the cost of the milk, unless used absolutely as a therapeutic agent, is entirely out of proportion to the status in life of most families who need this milk. According to one or two of the speakers, if the milk were used in pint quantities for several weeks it would be almost prohibitive. If used in quarts it runs up to $30 or $40 a week These prices are prohibitive for the common run of people who most need it. One speaker said 80 cents a quart It seems to me it is up to those of us who are studying this subject to see that the cost is reduced so that the people in moderate circumstances may be able to avail themselves of it

As to the question of boiling the milk, it seems to me we should be at least as careful as in the use of cow's milk The men who are collecting the milk and having a bacteria count of 100,000 should not be allowed to put such milk on the market, especially since it is mother's milk Cleanliness in mother's milk is more important and more easily obtained than in cow's milk Therefore, I urge on you the importance of keeping the bacteria count low enough so that you will not have to change the quality of the milk by boiling it

Dr T C McCleave, Oakland, Calif Much has been said about maintaining the mother in good psychologic condition For a great many years I have been connected with high grade dairy work and I have learned there that every dairyman knows how more or less to alter the constituents of the cow's milk at will—that he can so feed the cows as to get the maximum output of high-grade milk. The point brought out by the charts shown by Dr Hoobler is of greatest importance Apparently, heretofore, so far as my knowledge goes, the chief item considered in the feeding of the nursing mother is to give her a large quantity of food, especially milk and other fluids I have found in my experience that one of the most annoying things to the mother, and one which is complained of bitterly, is the everlasting having to eat I have had mothers say that they simply could not stand any longer this continual feeding—that they were nauseated with food I think Dr Hoobler, in laying down the limits beyond which it is unnecessary to go in feeding mothers for milk production, has brought out an important phase of this situation, and one that I hope to apply to the mothers coming under my care Certainly if we can keep mothers supplying the necessary amount of milk on a diet of 3,000 calories or less, we will relieve them of the distress of overfeeding, and of a disadvantageous phychologic condition

Dr. Jacob Sobel, New York I think Dr Ferguson sounded the keynote, so far as public health work is concerned The cost makes it prohibitive for the tenement house patients—those who need it most Far be it from me to say that the wealthy should not have all that money can buy, but in my opinion the children of the wealthy do not need this milk as much as those of the poor, for the wealthy can buy so many other things that compensate, for instance, proper surroundings and good hygienic conditions, careful nursing, and other things which will be impossible for the tenement baby The tenement child needs the best food obtainable, because it has to overcome the worst surroundings We must devise some means by which the poor people will be able to secure a reasonable supply of pure breast milk

I also want to corroborate the statement made by Dr Royster as to the importance of the mother knowing the weight of the child We know that the weight progress of the child is one of the most important indexes of its development, and if you will visit any of the baby health stations of the city—there are 59 of them—you will see the weight book which is given to the mother If the weight of that child remains stationary or declines, it is recorded in red ink as a danger signal, calling attention to the fact that something is wrong

Dr Isaac W Faison, Charlotte, N C I should like to ask Dr Hoobler the best means of expressing the breast milk I live in a country where there is no such thing as securing milk to feed a baby—mother's milk Therefore I must appeal to you men who live in the larger cities to study out and make plain an easy plan of artificial feeding It has got to be improved I live in a country where we do not, among the white race, have as many illegitimate children as in some communities These cases are among the colored in our district—a race that cannot be depended on as wetnurses In the desperate cases, what do I do? I go to the best women in our community and get the milk without money and without price, by just asking for it They will give it if they can That is the plan on which I have to work. And you people in the large cities, who have a large population to draw from, do not know the problems of the small town in that respect We need some plan of artificial feeding which will replace mother's milk. Still I know in some cases artificial feeding will not answer

The expression of the milk has been one of the things that has been a nightmare to me If there is a good breastpump on earth, I should like to find it If there is any plan by which we can feed these children outside of mother's milk, I should like to know it, and if there is any plan by which we can get the milk from the mother without worrying her to such a point that she cannot give enough for her own child, much less another's, I will be glad to know it

Dr. Oliver Hill, Knoxville, Tenn I come from Knoxville, a town no larger than Dr Faison's home, and wish to come to the defense of the Southern negro woman as a wetnurse. I have at present a negro wetnurse feeding five babies

A negro girl who passes a satisfactory physical examination and has a negative Wassermann, is eligible. These nurses go to the house and nurse the babies two or three times a day, or more if indicated, purely as a therapeutic measure, or for nutriment of the babies They can be cultivated until they are efficient

I really think we have an advantage over you gentlemen in the Northern cities, because the negroes will come for a small amount of money, if you do not overpay them, or pay them in advance And if you keep them in good physical condition they give milk of a good quality I have one who nursed three babies all summer, a girl about 22 years old She apparently gave plenty of milk for all three babies; with some supplementary feeding the latter part of the summer

Dr. Bert R Hoobler, Detroit Just a word about the expense of the milk In my paper I said we sold it at from 10 to 25 cents an ounce I also said we gave a good deal away to those who could not afford to pay at all The amount received from those who can pay helps to equalize the cost of that which we give away We say 10 cents an ounce as a minimum, because that about equals the amount paid to a wetnurse if we put her into the home Take $8 a week, and add to that the expense of the mother's food and other expenses, and it brings it up to about $15 a week Any home that can afford to pay $15 a week can afford to pay 10 cents an ounce In homes where there is more money, we get more, because they are willing to help pay for milk for those who are less fortunate Some persons become exceedingly interested in our bureau and have given freely and gladly to its support

The technic of expression has been discussed by every one of the essayists and I am sure if Dr Fason will interview any one of these men they will be glad to have a private conference with him.

ELECTROCARDIOGRAPHIC CHANGES ASSOCIATED WITH MYOCARDIAL INVOLVEMENT

WITH SPECIAL REFERENCE TO PROGNOSIS *

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Theoretical considerations have led us to investigate a certain type of electrocardiogram with a view to determining its relationship to myocardial involvement We were struck by the fact that the electrocardiograms interpreted as due to bundle branch lesions in human beings differed considerably from those resulting from experimental bundle branch lesions in animals Moreover, pathologically the occurrence of a lesion confined to either of the main bundle branches is a rarity In fact there is scarcely a single absolutely convincing reported case, confirmed by pathologic examination of bundle branch block On the contrary, pathologic examination in cases diagnosed electrocardiographically as bundle branch block has for the most part failed to show definite bundle branch lesions

However, it is common pathologic experience to find lesions in the lower third of the septum involving the wall of the left ventricle and, as will be shown, such lesions are the usual findings in cases diagnosed as bundle branch block[1] Anatomically these lesions involve not only heart muscle but the arborizations of the conducting tissue (Purkinje fibers) as well

THEORETICAL CONSIDERATIONS

The normal electrocardiogram is to be considered the result of the passage of an impulse at a normal velocity through the usual channels, that is, node of Tawara, main stem, bundle branches and arborizations, which consist of the so-called Purkinje fibers The latter form a network covering practically the entire endocardial surface of the ventricles The velocity of the impulse through Purkinje fibers is at least ten times faster than its rate through ordinary ventricular musculature The impulse reaches the ventricle normally through the Purkinje fibers, stimulating the ventricular walls practically as a whole[2]

It is conceivable that the passage of this impulse may be hindered at any point in the conducting system An experimental injury of either right or left main branch may interrupt completely the passage of the impulse over normal channels to the corresponding ventricle, the spread then occurring through ordinary muscular connections This gives a characteristic electrocardiogram differing in many respects from those to which we shall devote our attention But the theoretical possibilities are not limited to a complete block of one or both bundle branches A lesion only partly involving either bundle branch, or an extensive lesion of the arborizations of a branch such as occurs in human pathology, would cause a delay in the transmission of the excitation wave to the area supplied by the damaged conduction fibers Such a lesion, if sufficiently extensive, should give observable changes in the electrocardiogram, and it is probable that these changes will be distinguishable from the changes that are produced by most other cardiac abnormalities

These *a priori* considerations lead us to believe that there is an electrocardiogram that is characteristic of lesions involving part of a bundle or its arborizations The agreement of pathologic and clinical experience with theoretical considerations supports our belief that there is a more than accidental relationship between the two

Many of the cases we shall discuss cannot properly be termed bundle branch block and therefore we are introducing the term intraventricular block By intraventricular block we mean any delay in conduction below the main stem of the bundle of His Intraventricular block includes (1) bundle branch block, and (2) arborization or Purkinje block, by which we mean interference with the conduction beyond the two chief branches of the bundle of His

This disturbance of conduction may be permanent or temporary The permanent changes we consider indicative of a definite pathologic lesion, generally myodegeneration There are cases in which the electrocardiogram is temporarily of the type to be described[3] Experimentally the changes can be produced by morphin, asphyxia, etc Decompensation and agonal states do not as a rule produce these changes

The criteria in the electrocardiograms that we have used are in general as follows

1 Abnormal prolongation of the time interval of the QRS group beyond the normal limit of 0 1 second This prolongation is most manifest in a widening of the R wave, so that its foot points are abnormally separated The R wave no longer has its slender, tall, spike-like appearance, but is broader and sometimes blunter than normally

2 Notching of the R wave This notching may appear on the ascending or descending limb, on both limbs, or at the peak It may be multiple, and its degree and location may vary slightly from beat to beat In arrhythmias, the shorter the preceding interventricular interval, the more pronounced is the evidence of disturbed intraventricular conduction

3 Low voltage as expressed by a low amplitude of the waves in all three leads This change is not uniformly present, but when it occurs it helps to differentiate this type from the electrocardiograms typical of bundle branch block

4 Absence of the typical diphasic curves with huge T waves found in experimental bundle branch block

CLINICAL OBSERVATIONS

In the course of the past few years there have been observed sixty-two cases whose electrocardiograms indicated an intraventricular block Four of these cases showed electrocardiograms more or less typical of bundle branch block The other fifty-eight cases observed presented in their electrocardiograms the above mentioned criteria and were consequently interpreted as arborization block The sixty-two cases presented the clinical pictures of cardiovascular renal disease, atherosclerosis, coronary artery disease, angina pectoris, myocarditis, syphilis, acute articular rheumatism, "grip," diabetes, gout, etc

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* From the Electrocardiographic Laboratory Mount Sinai Hospital.

* Read before the Section on Practice of Medicine at the Sixty Eighth Annual Session of the American Medical Association New York, June, 1917

[1] Carter has reported a series of cases diagnosed as bundle branch block most of which we believe to be cases similar to those which we are about to describe.

[2] Lewis and Rothschild The Excitatory Process in the Dog's Heart, Part II Ventricles Phil. Tr Roy Soc. London Series B, **206**, 181 226

[3] G Canby Robinson has reported several such cases

The ages of these patients summarized according to decades can be seen in the accompanying table

AGES OF PATIENTS ACCORDING TO DECADES*

Age	Number
From 20 to 30 years	6
From 30 to 40 years	4
From 40 to 50 years	8
From 50 to 60 years	20
From 60 to 70 years	19
70 years or over	5
	62

* Average age 54

An analysis according to sex shows that forty-eight were men and fourteen women

Angina Pectoris —Twenty-seven of the patients had definite attacks of angina pectoris, fifteen complained of precordial distress, and twenty gave no history of either symptom

Blood Pressure —It is interesting but not surprising that of the forty-eight patients on whom we had blood pressure determinations, twenty-five had a systolic pressure below 140 mm of mercury, five between 140 and 160 mm , seven between 160 and 180 mm , and eleven between 180 and 220 mm

DISTURBANCES OF CARDIAC MECHANISM ASSOCIATED WITH INTRAVENTRICULAR BLOCK

1 There were thirty-five cases showing no arrhythmia, of these, twenty-four showed a left ventricular predominance according to the electrocardiogram, and one a right ventricular predominance It is worth pointing out in this connection that in the presence of marked intraventricular conduction defects, the ordinary electrocardiographic criteria for hypertrophy may not hold

2 Twelve cases showed auricular fibrillation

3 Two cases showed auricular flutter

4 Ten cases showed ventricular extrasystoles alone, and two others showed ventricular extrasystoles in combination with auricular fibrillation

5 Five cases showed varying ventricular complexes

Prognosis —Special emphasis should be laid on the serious prognosis in patients showing electrocardiograms indicative of intraventricular block Of the fifty-eight patients showing arborization block, twenty-two are dead, twenty-four are alive (and of these four are in a precarious condition) and twelve could not be traced Of the patients whose fate is known, the mortality has been 48 per cent within two years It should be stated that only one of our patients is apparently well, but he has been under observation only five months Of the four patients with more or less complete bundle branch block, three are dead, and one is in a precarious condition

There have been twenty-two other patients suffering from angina that have not shown these electrocardiographic changes, of these, only one is known to be dead, seventeen are known to be alive, and sixteen of these seventeen are doing well or fairly well, and one, an old man of 77, is in a precarious condition The average age of this group is 52 years

On physical examination two signs have been especially noted (1) a muffled, poor or practically absent first heart sound, and (2) a gallop rhythm One is often struck by the fact that the heart is hypertrophied, but that the first sound, instead of being booming, has a poor or muffled quality

ASSOCIATION OF ATRIOVENTRICULAR AND INTRAVENTRICULAR BLOCK

Intraventricular block is frequently associated with various grades of atrioventricular (auriculoventricular) block These are not included in our analysis of sixty-two cases Of eighteen patients showing various grades of heart block, thirteen also presented evidence of intraventricular block Only three of the eighteen patients are known to be dead, but these three had the combination of atrioventricular and intraventricular block

PATHOLOGY

There have been necropsies in fourteen of the twenty-five known fatal cases In eleven cases there has been an opportunity to examine the hearts grossly, as well as microscopically In one case we secured only the septum including the atrioventricular bundle, and in two others, we have the necropsy reports and a single slide of heart muscle Serial sections are being prepared

1 At the present time we can report that eight of the cases showed coronary artery sclerosis with closure of the anterior descending branch of the left coronary This artery gives off septal branches which supply the anterior part of the septum (the bundle of His and its two main divisions are supplied chiefly by branches from the right coronary artery) Four other cases showed a nodular sclerosis of the coronary arteries, but no actual occlusion

2 Thirteen of the fourteen patients had a widely disseminated patchy sclerosis of the myocardium Of the two that did not have coronary disease, one was a young girl aged 20, who had no known cause for the interstitial myocarditis except a recent "grip," the other was aged 30 and died of cardiac insufficiency resulting from valvular defects

3 The pathologic changes, especially the sclerosis predominate in the endocardial and subendocardial layers, that is, in the region of the so-called Purkinje network, as compared with the outer two thirds of the ventricular musculature

4 In general, the changes were grossly more marked in the left ventricle than in the right

Experimental work has been begun in collaboration with Dr H B Williams, and at present it can only be stated that injury of the main branches or of the arborization produces changes in the electrocardiogram It has already been shown by Eppinger and Rothberger[4] that extensive experimental injuries to the external layers of the ventricular wall do not result in changes in the electrocardiogram

CONCLUSIONS

1 There has been a discrepancy between previous electrocardiographic interpretation and pathologic findings

2 Theoretical considerations and pathologic findings point to the existence of a hitherto undescribed type of disturbance which we have called arborization block

3 We venture to state, therefore, that there is a definite clinical condition to be known as arborization

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[4] Eppinger and Rothberger Wien klin Wchnschr, 1909, 22, 1091 1098

block, that this condition can be diagnosed by the presence of a definite and permanent type of electrocardiogram, and that the condition has a very serious prognosis

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ABSTRACT OF DISCUSSION

Dr. H B Williams New York I have followed the work of Drs Oppenheimer and Rothschild with interest because I have seen a number of cases of the same nature but have been unable to secure necropsies in many of them Dr Rothschild has properly emphasized the fact that one cannot make a diagnosis of lesions of one main branch of the bundle of His when there is marked hypertrophy of a ventricle The lesion referred to has often been made on the basis of the electrocardiogram without sufficient justification I have seen but three cases in the last seven years in which I have felt reasonably secure in diagnosing this lesion

The peculiar notched and deformed electrocardiograms which Dr Rothschild has shown I have learned to look on as calling for a serious prognosis Of a considerable number of such patients seen by me prior to 1915 only two are still living One sometimes sees this type of electrocardiogram, however in patients who get along tolerably well for a time We should therefore, make use of all the other available clinical evidence before making a decision

Dr. E. Libman, New York Apart from neuroses aneurysm and pericarditis the most common causes of severe attacks of cardiac pain are the following hypertension, atherosclerosis of the arch with narrowing of the orifices of the coronary arteries or of their lumen diffuse arterial disease in the coronary system, thrombosis of the coronary arteries and syphilitic lesions at the aortic valve or the root of the aorta The cases with the classical picture of angina pectoris are mostly cases of coronary thrombosis If one has had sufficient postmortem experience, it is very often not difficult to say whether there is a thrombosis of the coronary arteries and at times it is possible to suspect whether the right or the left coronary artery is thrombosed There are cases in which it is very difficult to say whether the patient is suffering from a gastric condition such as ulcer with reflex pain in the cardiac area or whether the patient has coronary artery disease, or possibly both In all such doubtful cases the electrocardiographic findings as described by Drs Oppenheimer and Rothschild ought to be of value.

The cases in my own service at the hospital in which these findings were present were all cases in which I had assumed that the patient was suffering from organic heart disease of the coronary arteries—with the exception of one case of aortic insufficiency in a young man, this case did not come to necropsy and it is therefore not known whether or not the patient had any disease of the myocardium Complete closure of the coronary artery may occur very insidiously, and the patients make no complaint of any cardiac symptoms Some of these patients can be recognized by a peculiar color of the face an earthy color overcast by a leaden tint. In such cases an electrocardiographic examination might be of value in confirming the diagnosis The diagnosis in such cases is particularly important if the question of operation on some part of the body has arisen Such patients are apt to succumb within twenty-four to forty-eight hours after operation, although they have had no cardiac symptoms before.

Dr. James B Herrick Chicago I wish to add a word of commendation of this excellent work which has been done in the attempt to correlate the pathologic findings with the findings of the electrocardiograph In Chicago we have been trying to get at this problem by experimental work on dogs, producing myocardial lesions by ligating branches of the coronary arteries I think we will reach conclusions much like those presented to us today Already we have begun to recognize in man curves which we have found in dogs which were operated on. In a man who had as I believe, coronary thrombosis the cardiogram was like that which we got in dogs by ligating the left branch of the coronary artery The changes in the cardiogram described by Dr Rothschild seem to be associated with very definite clinical evidences of myocardial weakness A large percentage of the patients who have shown anything like that have died in a short time

Dr M A Rothschild New York I should like to emphasize one point again In the twenty two cases of classical angina that we have included in our series that did not show the electrocardiographic criteria of arborization block we have been able to follow seventeen patients, and only one of the seventeen is dead In the other sixty-two cases with or without angina whose electrocardiograms presented the criteria of arborization block, the mortality has been approximately 50 per cent in two years In our experience therefore the electrocardiogram gives valuable evidence in regard to prognosis, especially in those doubtful cases of angina

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HOOKWORM INFECTION AS A MEDICO-MILITARY CONSIDERATION

RECENT EXPERIENCES WITH SOUTHERN TROOPS DURING MOBILIZATION ON THE MEXICAN BORDER *

GEORGE B FOSTER JR, M D, Dr P H

AND

CHARLES G SINCLAIR M D

Captain and First Lieutenant Respectively, Medical Corps United States Army

ATLANTA, GA

Following the call of the President, June 18, 1916, approximately 10,000 men were mobilized at Nogales, Ariz These troops, with the exception of 1,200 regulars, were composed of organizations of the National Guard from northern eastern and Pacific states They had very little sickness The morbidity rates for August, September and the first three weeks in October varied from 14 to 35 per thousand for the regulars and from 7 to 29 per thousand for the National Guard The average morbidity rate for regulars was 23 1 per thousand while that of the National Guard was somewhat lower, 17 9 per thousand

During the last week in October, 1916, a brigade of the Alabama National Guard was mobilized at Nogales This command consisted of headquarters, three regiments of infantry, an ambulance company, a field hospital and a company of Signal Corps troops Shortly after the arrival of these troops the morbidity rates began to soar During November, acute respiratory infections—colds, grip and bronchitis—reached epidemic proportions, and the base hospital was taxed to its full capacity In December, pneumonia and measles became epidemic and continued until March

TABLE 1—INCIDENCE OF PNEUMONIA, NOGALES DISTRICT

Organization	No Cases	No Deaths	Per Cent Mortality
First Alabama Infantry	63	17	26 9
Second Alabama Infantry	28	4	14 3
Fourth Alabama Infantry	28	6	21 4
First Alabama Ambulance Company	2	0	
Alabama Signal Corps (one company)	2	0	
Total	123	27	21 9
Medical Department U S Army	3	0	
Twelfth U S Infantry	8	1	12.5
Battery D, Sixth U S Field Artillery	1	1	100
First U S Cavalry (two troops)	1	0	
Battery C First California Field Artillery	1	0	
Second Squadron, First Utah Cavalry	2	0	
Second Idaho Infantry	1	0	
Total	17	2	11 6

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* From Department Laboratory No 3 Southern Department, U S Army, Nogales Ariz.

There were 140 cases of pneumonia with twenty-nine deaths Two-thirds of the cases were of the frank, primary, lobar type, and the remainder complicated or followed measles The incidence of pneumonia by organizations is shown in Table 1

In addition to the pneumonia outbreak and the prevalence of less serious respiratory infections, measles became a serious sanitary consideration The epidemic began in December, and continued until March Several hundred cases, confined almost wholly to the Alabama troops, occurred during the epidemic The curve of the epidemic showed three distinct outbreaks separated roughly by a period corresponding to the incubation period of measles Over 400 cases occurred in the first outbreak Complications and sequelae—notably pneumonia, sinus involvements and otitis media—were common, and a number of deaths resulted

Official data submitted by the organization commanders of the First Alabama Infantry covering a four month period—Oct 24, 1916, to Feb 24, 1917—show that of the 963 men composing the regiment, February 24, 809, or 84 per cent, had been on sick-report for some cause at some time or other Similar data, for the same period, submited by company commanders of the Fourth Alabama Infantry, show that 859 reported sick, or 85 7 per cent of the 1,002 men composing that command Figures for the Second Alabama Infantry are not available, but it is believed that the morbidity approximated that of the other regiments Such morbidity rates as these, were they to prevail throughout an army in campaign, would result in the breaking down of the most elaborate and splendidly equipped medical department conceivable, and the training, mobility, morale and efficiency of the forces would be so interfered with as to render them practically ineffective as combatant troops

During this period there were no epidemics in the civil community Measles was not prevalent, and data obtained from the civilian practitioners show that but thirty cases of pneumonia were encountered among 8,800 civilians—the combined population of Nogales, Ariz, and Nogales, Sonora The morbidity rates for all other troops—both regulars and National Guard—were at times high, but never abnormally so The environment and conditions under which the Alabama troops lived were identical with those of the other troops All were furnished the same ration, the same clothing and bedding, the same type of shelter, an unimpeachable water supply, a uniform system for the disposal of excreta and wastes, and ideal camp sites Comprehensive sanitary measures to decrease the morbidity were clearly defined by the district surgeon and sanitary inspector—a medical officer of experience, great force and resourcefulness, and these were promptly promulgated and made effective by an equally experienced and forceful commanding general Despite every effort, the morbidity rates remained high

It was apparent that factors not common to the other troops determined the high incidence of disease in the Alabama command Comparison of their morbidity rates with those of the regulars might have led, offhand, to the conclusion that the sickness was due to inexperience in personal hygiene and camp sanitation Comparison with the other National Guard troops—equally inexperienced, recruited from the same walks of life, and living under identical conditions—militates against the acceptance of any such conclusion Certain of their own medical officers believed that the climatic conditions exerted a determining influence Nogales, however, is looked on as one of the most healthful points on the border, and its health record previously had been an enviable one The town is situated in a hilly country at an elevation of 3,864 feet The official climatologic data show that during the months of November and December, when much of the illness occurred, the maximum temperatures were 90 and 77 F, and the minimum temperatures 20 and 12 F, respectively A bulletin of the Arizona Experimental Station states that to get the appreciable higher temperatures here, it is necessary to subtract from 15 to 30 degrees from the maximum In other words, the extreme dryness of the air makes Nogales that much cooler than the "humid" east with corresponding temperatures At the other end of the thermometer the appreciable temperatures are higher than those actually registered, from the same cause The fact remains that a considerable fall in temperature—frequently 30 or 40 degrees—may occur between noon and midnight While this change might be potent for harm in persons whose health had been undermined otherwise, the experience of troops stationed here previously indicates that it has no deleterious effect on persons of average robustness and resistance

TABLE 2—INCIDENCE OF HOOKWORM INFECTION, FIRST ALABAMA INFANTRY

Organization	Number Examined	Number Positive	Number Negative	Per Cent Positive	Home Station
Hdqrs Company	41	12	29	29 3	Mobile, Mobile Co
Det Med Dept	15	2	13	13 3	Mobile, Mobile Co
Supply Company	24	6	18	25 0	Various places
Machine Gun Co	44	7	37	15 9	Mobile, Mobile Co
Company A	41	13	28	31 7	Mobile, Mobile Co
Company B	20	11	9	55 0	Bay Minette, Baldwin Co
Company C	64	35	29	54 6	Geneva, Geneva Co
Company D	33	16	17	48 4	Fort Deposit Lowndes Co
Company E	57	18	39	31 9	Mobile, Mobile Co
Company F	51	26	25	51 9	Dothan, Houston Co
Company G	62	26	36	58 0	Brewton, Escambia Co
Company H	62	31	31	50 0	Troy, Pike Co
Company I	65	37	28	56 9	Enterprise, Coffee Co
Company K	62	39	23	62 9	Castleberry, Conecuh Co
Company L	56	36	20	64 2	Slocomb, Geneva Co
Company M	47	17	30	36 1	Mobile, Mobile Co
Totals	744	342	402	45 7	

Lieut -Col Thomas C Bratton, Medical Corps, the district surgeon and sanitary inspector, who had had experience with the same troops at Manassas several years previously, believed from the first that the high morbidity was due to hookworm infection and latent malaria By Colonel Bratton's direction, each Alabama soldier admitted to the hospital was examined for malaria and hookworm infection Later, as it became apparent that hookworm infection was exceedingly common, the survey was amplified so as to include Alabama soldiers in camp as well, and steps were immediately taken to treat those who showed infection

Blood examinations in the cases of 236 Alabama soldiers admitted to hospital showed but 0 3 per cent in whom plasmodia were demonstrable It is probable that this does not represent the true malaria index, as many of the men took quinin before admission—a common custom of people from malarial districts—and demonstration of the plasmodium may have been obviated in this way in many cases The findings did not indicate that latent malaria was unduly prevalent however, and a general malarial survey was not deemed advisable

The hookworm survey consisted of the examination of 1,259 men. The majority of these were from the First Alabama Infantry, in which regiment an attempt was made to examine every one. A little over one third of the Fourth Alabama Infantry were examined prior to their departure from Nogales. The data on the Second Alabama Infantry include only patients admitted to hospital, and show but 149 examinations. Of the 1,259 men examined, hookworm ova were demonstrated in the feces of 503, or 39.9 per cent. The incidence of infection is shown in detail in Tables 2, 3 and 4.

TABLE 3.—INCIDENCE OF HOOKWORM INFECTION, SECOND ALABAMA INFANTRY (INCLUDES SICK IN HOSPITAL ONLY)

Organization	Number Examined	Number Positive	Number Negative	Per Cent Positive	Home Station
Hdqrs. Company	3	1	1	33.3	Montgomery, M'gomery Co
Det. Med. Dept.	0	0	0		Montgomery, M'gomery Co
Supply Company	6	2	4	33.3	Various places
Machine Gun Co.	12	7	5	58.3	Andalusia, Covington Co
Company A	5	3	2	60.0	Montgomery, M'gomery Co
Company B	15	5	10	33.3	Birmingham, Jefferson Co
Company C	7	1	6	14.2	Birmingham, Jefferson Co
Company D	12	6	6	50.0	Montgomery, M'gomery Co
Company E	5	4	1	80.0	Florala, Covington Co
Company F	7	4	3	57.1	Tuscaloosa, Tuscaloosa Co
Company G	19	6	13	31.5	Piedmont, Calhoun Co
Company H	14	6	8	42.8	Andalusia, Covington Co
Company I	11	8	3	72.7	Luverne, Crenshaw Co
Company K	11	2	9	18.1	Sheffield, Colbert Co
Company L	11	3	8	27.2	Tallassee, Elmore Co
Company M	11	7	4	63.6	Samson, Geneva Co
Totals	149	65	84	43.6	

Reference to these data and to a map of Alabama shows that the organizations in which the incidence of hookworm infection was greatest came from the low, flat, river-intersected portion of the state lying south of the thirty-third degree of north latitude. It was among troops from this section of the state, likewise, that the morbidity and mortality was highest. Capt. Thomas J. Flynn, Medical Corps, who has recently compiled the clinical data gathered during the pneumonia outbreak, informs us that 90 per cent. of the cases of pneumonia occurred in soldiers from the southeastern quadrant of the state, irrespective of the regiments to which they belonged. That portion of the state lying north of the thirty-third parallel is mountainous or hilly, and the lesser incidence of hookworm infection is readily explained by the less favorable soil and climate for the development of the hookworm larvae. Another interesting fact, that is in accord with the observations of numerous investigators, is that the incidence among troops from the large cities—Birmingham, Montgomery and Mobile—was only approximately one-half as great as that among troops from the smaller towns and rural communities. This may be explained by the greater degree of soil pollution in rural districts and the relatively greater frequency with which rural people go barefooted. The comparative figures for cities and smaller communities, and for the sections of the state north and south of the thirty-third parallel are given in Tables 5 and 6.

TABLE 4.—INCIDENCE OF HOOKWORM INFECTION, FOURTH ALABAMA INFANTRY

Organization	Number Examined	Number Positive	Number Negative	Per Cent Positive	Home Station
Hdqrs. Company	3	1	2	33.3	Montgomery, M'gomery Co
Det. Med. Dept.	2	1	1	50.0	Birmingham, Jefferson Co
Supply Company	0	0	0		
Machine Gun Co.	29	11	18	37.8	Montgomery, M'gomery Co
Company A	42	8	34	19.0	Montgomery, M'gomery Co
Company B	16	10	6	62.5	Abbeville, Henry Co
Company C	19	5	14	26.3	Pell City, St. Clair Co
Company D	15	7	8	46.6	Bessemer, Jefferson Co
Company E	33	2	31	6.0	New Decatur, Morgan Co
Company F	11	4	7	36.3	Gadsden, Etowah Co
Company G	15	8	7	53.3	Ozark, Dale Co
Company H	24	10	14	41.7	Alexander City, Tallapoosa (Co
Company I	31	9	22	29.0	Opelika, Lee Co
Company K	47	6	41	12.8	Birmingham, Jefferson Co
Company L	48	5	43	10.4	Alabama City, Etowah Co
Company M	31	9	22	29.0	Oxford, Calhoun Co
Totals	366	96	270	26.2	

SUMMARY AND COMMENT

It has been shown that 39.9 per cent. of 1,259 men, chosen at random from the organizations composing a brigade of the Alabama National Guard, were infected with hookworm. Furthermore, it has been shown that these troops proved exceedingly prone to infectious diseases—notably pneumonia and measles—when placed under conditions simulating those of field service. That this susceptibility was due to something inherent in this particular body of men, that was not common to other organizations, seems evident in view of the way in which the situation was controlled by the absence of any such degree of susceptibility in other troops living under identical conditions.

In addition to an untoward susceptibility to intercurrent infections, there was an equally evident absence of resistance to infection once acquired. The mortality from pneumonia was much higher than that of the other troops, and complications and sequelae were common. Measles ran rampant throughout these troops, and its complications were numerous and, in many cases, grave. Pneumonia exacts its greatest toll from the aged, the impoverished, the ill-fed, the alcoholic and the otherwise debilitated, while measles, a disease attended with a mortality of only 2 or 3 per cent. in private practice, causes great concern in institutions, among the poorer classes and in armies. In short, these diseases work great havoc only where the soil has been prepared previously by some debilitating agent. In the instance of the Alabama troops under discussion we are convinced that hookworm infections of considerable chronicity acted as the predisposing factor.

TABLE 5.—COMPARISON OF INCIDENCE IN LARGE CITIES AND SMALLER COMMUNITIES

	Examined	Positive	Per Cent Positive
Birmingham	71	13	18.3
Montgomery	99	30	30.3
Mobile	245	69	28.1
Totals	415	112	26.9
Towns and rural districts	813	383	47.2

TABLE 6.—COMPARISON OF INCIDENCE NORTH AND SOUTH OF THIRTY-THIRD PARALLEL

	Examined	Positive	Per Cent Positive
Troops from North	265	57	21.5
Troops from South	963	438	45.3

Whether the hookworm exerts its debilitating effect by abstraction of blood with a resulting anemia, by mechanical injury to the intestinal mucosa followed by infection, or by the production of a toxin are, we believe, still moot questions. In view of the susceptibility to pneumonia shown in this communication, and the well known susceptibility of these patients to tuberculosis, it is possible that the tissue resistance of the lung may be reduced by the mechanical traumatism induced by the passage of the larvae through the lung in their circuitous route from the skin to the intestine. At any rate, many of the men observed here showed a very definite degree of debility, characterized by mental and physical apathy, malnutrition, underdevelopment and marked anemia It is believed that these factors combined greatly to reduce or render nil the natural resistance to intercurrent infections, and that these individuals would have become virgin soil for any micro-organism with which they came in contact

The high incidence of measles may be attributed in part to the fact that many of the men were from rural districts and had not, therefore, been exposed previously But, that the devitalizing effects of hookworm infection were also factors is evident from the altogether untoward frequency and gravity of complications and sequelae Many of the measles patients gave a history of having had measles previously, and a number of patients were readmitted with measles after having recovered from a typical attack shortly before As reinfection in measles is extremely rare ordinarily, it seems not only that hookworm infection had sapped the natural resistance to infection but also that the degree of immunity conferred by an infection was also below par

Another consideration in connection with this problem is the possibility, under favorable conditions, of troops from hookworm-infected districts spreading the disease broadcast throughout previously uninfected districts to which they may be sent This danger from immigration has been anticipated in California by the establishment of rigid quarantine measures against certain classes of immigrants from the Orient When one contemplates that a division at war strength recruited indiscriminately in any of the heavily infected hookworm districts of the South would contain approximately 10,000 potential soil polluters, the existence of a real rather than a fancied menace becomes apparent

Hookworm infection is extremely prevalent in sections of Virginia, both of the Carolinas, Tennessee, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Arkansas and Kentucky Cases have been reported from Oklahoma, California and Missouri We believe it is the manifest duty of those charged with the physical examinations in these states to exercise the greatest care in the selection of recruits In our opinion, only individuals in robust health should be accepted, and anemia, lassitude, underdevelopment, or complaint of digestive disorders, with a history of "ground itch" should constitute causes for "sight rejection" Examination of the feces of recruits from Southern States for hookworm ova, although not mandatory at present, should be a part of any thoroughly conducted examination

Rosenau[1] states that the best part of a hookworm campaign is the collateral good it does He cites the instance of Bilibid prison, Manila, where the annual death rate from all causes was 234 per thousand when the Americans took charge This was reduced to seventy-five per thousand by general sanitary measures — boiled water, screening, disinfection, better food, less crowding, etc — "but despite these sanitary improvements the death rate could not be hammered down below seventy-five per thousand" Then it was found that many of the prisoners were infected with hookworms They were freed of their worms by treatment with thymol, and the annual death rate from all causes fell to 13.5 per thousand

It seems probable that the inauguration of systematic hookworm surveys throughout the southern troops now in the service and in all mobilization camps in the Southern States, together with systematic treatment of those found infected, would not only reduce uncinariasis itself to a minimum, but would also reap incalculable collateral benefits

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ACUTE PANCREATITIS *

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The pancreas is the most important of the digestive organs Not until recently, however, have the frequency and importance of its diseases been recognized The peculiarities of its situation, anatomy and function exercise a profound influence on the etiology and course of the inflammations which attack this organ and must be understood in order to treat these affections on rational lines

It has been sufficiently emphasized that pancreatitis is in the majority of instances due to infection propagated from some adjacent focus, in most instances the biliary tract For a time this close interdependence was thought to be due to the fact that the terminal ducts of the liver and pancreas either anastomose in the ampulla of Vater or lie in immediate proximity, thus affording an opportunity for descending inflammation of the one duct to become an ascending inflammation of the other While this method of infection may be the correct explanation of certain cases of pancreatitis, in the majority of instances much doubt has been cast on this route of extension The work of Bartels, Arnsperger, Franke, Deaver and Pfeiffer, and Sweet has seemingly established the fact that such extension commonly occurs by way of the lymphatics which form a rich anastomosing network in the retroperitoneal tissues about the pancreas As the gallbladder is the upper abdominal organ most commonly affected by chronic infection it is but natural that pancreatic inflammation is most often secondary to that focus However, sufficient clinical evidence is at hand to indicate that pancreatitis may in the same manner result from duodenal ulcer, particularly when situated in the second portion of the duodenum, and probably from colitis through the medium of the lymphatics leading off from the colon through the transverse mesocolon to the pancreas situated immediately beneath its attachment Probably still more distant foci, such as the appendix and the pelvic organs, may in some instances succeed in transmitting infection retroperitoneally to the pancreas by way of the ascending lymph channels I have met with two cases of small circumscribed abscess of the pancreas in perforative appendicitis, and one abscess of the pancreas in the presence of retroperitoneal diffusion of pus the result of an infection of the left lower extremity

These considerations emphasize the importance of dealing promptly and efficiently with foci of infection within the abdominal cavity, and point to the danger of permitting lurking and latent infections to exist in a more or less quiescent state In other words, the curative methods of surgery are enhanced in value as opposed to the palliative methods of medical treatment

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[1] Rosenau, M J Preventive Medicine and Hygiene, Ed 2, New York, D Appleton & Co, 1916, p [illegible]32

* Read before the Section on Obstetrics Gynecology and Abdominal Surgery at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917

So important and definite of late have been the evidences of metastatic systemic infection from some inconspicuous focus that it is not unlikely that we shall find certain cases of pancreatitis to be due to this type of infection The analogy of the severe and sudden onset of hemorrhagic pancreatitis with other conditions of the sort, as for instance hematogenous infection of the kidney, is at least striking As yet, however, this method of pancreatic infection is mere speculation Since Fitz drew attention to the striking lesion of acute hemorrhagic pancreatitis we have learned that not all acute inflammations of the pancreas are accompanied by hemorrhage but that here as elsewhere inflammatory lesions occur in varying degrees of severity Hemorrhage is as variable in extent and degree as fat necrosis, and probably for a similar reason The most important recent contribution to an understanding of the peculiarities of acute pancreatitis and its effects has to do with the ferments of the pancreas

Since Balser first observed and wrongly interpreted the significance of certain grayish flecks in the abdominal fat the correct explanation of these areas of fat necrosis has been found in the action of the fat-splitting ferment, lipose, which finds its way into the tissues under the circumstances of acute inflammation of the pancreas and attacks the fat The resulting areas of neurosis are now so well known to be connected with acute pancreatic inflammation as to furnish one of the most striking and reliable diagnostic guides to the surgeon

The action of the protein-splitting ferment, trypsin, has escaped attention until recently It is evident that any inflammation which causes a diffusion of lipase must also carry with it the remaining ferments which are always present in the pancreatic secretions Trypsin as a factor in the syndrome of acute pancreatitis has escaped attention because it has given no such ocular evidence of its presence in the tissues as has lipase in the areas of fat necrosis Possibly this should be qualified by saying that the hemorrhage which is so striking a feature of some cases is possibly due to the digestive action of the trypsin on the vessel walls

Trypsin is one of the most powerful ferments elaborated within the body In weakly alkaline solution it attacks protein with great activity, breaking it up into its lower constituent molecules When this takes place within the intestinal canal the process is that of normal digestion and the end-products of such digestion are fitted for absorption and use in metabolism Such an important and active agent, when directed against the tissues of the individual that produces it, is capable of much harm Just why the pancreas escapes self-digestion under normal circumstances is too abstruse a problem for brief discussion, but at least one of the reasons is to be found in the fact that the ferment as secreted by the pancreas is inactive and is known as protrypsin Pure pancreatic juice as obtained fresh and uncontaminated from the pancreatic duct will not digest protein It requires for activation some substance or substances which will convert its latent properties into active energy Normally this is supplied by the so-called enterokinase of the duodenum Experimentally activation may be produced by the action of calcium salts, by the products of aseptic necrosis of tissues and by certain bacteria

We see briefly, therefore, that it is possible for inactivated pancreatic juice to be extravasated *into* the tissues without loosing on them the destructive action of the trypsin on the tissue cells If, however, the conditions are such that the trypsin is activated, its digestive action becomes apparent Tissue cells are attacked and destroyed The delicate vessel walls of the pancreas and surrounding structures are injured and permit the escape of blood and the result is acute hemorrhagic pancreatitis

The consequences of this action of trypsin may be traced even further with a fair degree of certainty from inference and demonstration Whipple, Stone and Bernheim, and others in their work on the toxemia of intestinal obstruction, have shown the existence of a powerful toxin which is produced in acute obstructive conditions and proves fatal in exceedingly small doses Whipple has shown that this substance answers all the characteristics of a *primary* proteose, a substance which is one of the earliest decomposition products of protein when acted on by trypsin Sweet has called attention to the close resemblance of the toxemia of acute pancreatitis to that of high intestinal obstruction It does not seem unlikely that the close resemblance is due to the fact that the toxemia of both conditions is either the same or is closely related, being due to the toxic derivations of tryptic action on *protein materials*

I emphasize these apparently theoretical considerations because of the important bearing that these conceptions, if true, have on actual practice

Acute pancreatitis, according to the severity of its onset and course, may be classified clinically as ultra-acute, acute and subacute The ultra-acute variety is characterized by sudden onset of great severity with pain, shock and continued vomiting Hemorrhage into the pancreas and its surroundings is profuse Though the primary shock may abate, the subsequent course of the disease is progressively downward and death usually occurs within three days, the pancreas being found completely infiltrated, hugely swollen and in a condition of necrosis and gangrene more or less advanced, according to the time which has elapsed since the beginning of the seizure

Acute pancreatitis differs from the above in the severity of the attack The onset is usually sudden, but less severe, and the rallying power of the patient is more in evidence Pancreatic hemorrhage is a feature, but the organ shows less swelling and may have escaped this process in some portion If the early toxemia is not fatal general improvement gradually occurs, and it will be found that a portion of the organ has remained unaffected or will recover itself The most affected part undergoes necrosis and gangrene and as a rule suppuration promptly ensues In very rare cases pyogenic infection does not follow and recovery takes place with the formation of an aseptic hemorrhagic cyst As a rule, sepsis supervenes and unless relieved leads eventually to the death of the patient

Subacute pancreatitis, which is not uncommon, is usually an affection limited to the head of the organ Occasionally an interstitial hemorrhage of small extent is present More often no hemorrhage occurs, but the pancreatic head is swollen and tender, though not often distinctly palpable The symptoms usually erroneously attributed to gastritis, gallstones, ulcer, or masquerading as “acute indigestion,” are upper abdominal pain, nausea, and often vomiting The pulse and temperature are but little affected unless complicating inflammation of the organ is present Very often cholecystitis accompanies and may have inaugurated the condition A history of previous attacks is not uncommon and it is not uncommon to find that the subject of the acute or ultra-acute forms of the disease has had preliminary attacks of the subacute variety

The treatment of the different forms of acute pancreatitis will naturally vary with the type of the disease

In the ultra-acute and acute varieties immediate operation should be the rule Under our modern conception of the mechanism of the production, course and effects of acute pancreatitis it is essential that the combined products of infection and ferment action should be afforded an exit from the body, in order to prevent the deadly effects of absorption The prime object therefore is early and adequate drainage The most satisfactory approach in this stage is through an anterior incision exposing the pancreas either through the gastrocolic omentum or the gastrohepatic ligament, depending on whether the stomach is situated high or low

The pancreas should be freely incised in a longitudinal direction or numerous blunt punctures made in its substance, thus giving vent to the contained blood, lymph and obstructed secretions Both gauze and tube drainage should be laid down to the surface of the organ and conducted to the surface through an enveloping sheet of rubber dam to minimize adhesions to the stomach and intestines

The only exception to the rule of immediate operation are (1) in case of severe shock, when sufficient time should be given for recovery under the aid of active stimulation and saline infusion, (2) when the patient at the time observed is obviously improving from the effects of the disease In the first case the delay is a simple matter of surgical judgment In the second case the course of events has fortunately demonstrated that the patient does not belong to the ultra-acute type and will be no worse and probably better for a shorter or longer period of observation

That these symptoms are not theoretical only but accord with practice can be seen in the results of the last thirteen operations for acute pancreatitis made by me Three cases resulted fatally, a mortality of 23 per cent One of the fatal cases was of the ultra-acute variety The woman, aged 38 years, had been sick only one day when operated on Death occurred on the operating table before anything could be done The second case was also a woman, aged 30 years At operation stones were found in the gallbladder and common duct The pancreas was enlarged and areas of fat necrosis were noted in the surrounding fat The stones were removed by cholecystostomy and choledochostomy The pancreas itself was not opened or drained The postoperative course was stormy and septic in character Three weeks later an inflammatory mass presented in the left loin and her condition was grave An incision through the loin evacuated a quantity of bloody and purulent debris, but she succumbed from weakness and toxemia shortly after the operation Postmortem examination showed the pancreas to be gangrenous and disorganized

The third fatality occurrend in the case of a man aged 29 years His attack was typical and the operation was made two days after onset The pancreas was swollen and numerous stones were present in the gallbladder, which was opened and drained The pancreas was not incised or explored The postoperative course was progressively downward and he died in two weeks Necropsy revealed hemorrhagic and suppurative pancreatitis

The first case mentioned was beyond redemption by any treatment Cases of pancreatitis occur of such severity that the patient is doomed from the onset. Experimental work has shown that the pancreas may be damaged in an instant by the forcible injection of bile or many other substances into the duct of Wirsung, following which acute hemorrhagic pancreatitis makes its appearance and runs a fatal course It is apparent that a very brief space of time may suffice to inaugurate the combination of trauma, ferment and infection that will proceed inevitably to gangrene and disorganization of the pancreas These are the true ultra-acute cases and are fortunately of rare occurrence

In the remaining two cases it will be seen that drainage of the biliary tract did not prevent the further development of the pancreatic disease and a fatal outcome

On the other hand, in five cases in which the pancreas was freely drained, all recovered In one case pancreatostomy alone was made, in the remaining four, cholecystostomy for stones was done in addition In the case of two other patients that recovered, besides a cholecystostomy, gauze drainage was carried down to the surface of the pancreas, which was not incised or punctured I cannot but feel that in the two fatal cases primary pancreatic drainage would have greatly increased the chance of recovery In the remaining three cases the only operation was a cholecystostomy Of five cases therefore in which the pancreas was not drained and the only operation was removal of stones and drainage of the biliary tract, three patients recovered and two died During the period covered by these cases there were observed in the medical wards of the German Hospital six cases diagnosed as acute pancreatitis, in which operation was refused Two of these patients died and four recovered so that the mortality of expectant treatment was slightly less than that of operation without drainage of the pancreas Korte from his large experience with this disease recommends free pancreatic drainage It seems safe to conclude, therefore, both from our knowledge of the nature of the disease and on the basis of practical experience that this procedure is called for in acute pancreatitis

In the case of circumscribed pancreatic collections, abscess of the lesser peritoneal sac and in peripancreatic suppuration, drainage of the abscess cavity alone is indicated Such collections not uncommonly present in the left loin and may be advantageously evacuated at that point

The advisability of supplementing drainage of the pancreas with operations on the biliary tract if stones or inflammation be present will be determined by the condition of the patient and the experience of the surgeon Occasionally there are cases of such severity that it is unjustifiable to do more than the prime object of the operation, which we must regard as drainage Usually there is ample margin of safety for the experienced abdominal surgeon to open, empty and drain the gallbladder and common duct if necessary Stones in the common duct should certainly be removed if the condition warrants In a number of instances I have removed the appendix

The important practical points in connection with the subject of acute pancreatitis are (1) the secondary relationship of the disease to preexisting intra-abdominal foci of infection, (2) the lethal character of the toxemia, (3) the necessity for prompt action, and (4) the value of direct and free drainage

1634 Walnut Street

ABSTRACT OF DISCUSSION

Dr. Russell S Fowler Brooklyn Pancreatic disease is dependent on infection either hematogenous or lymphatic secondary to a lesion in a neighboring organ This latter I believe to be the more frequent

Routine palpation of the pancreas in all laparotomies which permit of it leads to the conclusion that the majority of the cases of long standing gallbladder disease show palpable alteration in the structure of the pancreas

The diagnosis of cholelithiasis complicated by acute pancreatic necrosis is made difficult as the patient usually describes the symptoms of gallstone colic The first thing thought of is a severe attack of cholecystitis and cholangeitis

When a patient with gallbladder disease suffers severe attacks of pain located more to the left and when on palpation the left side is found more resistant than the right the first thing to think of is acute pancreatitis Of course there must be taken into consideration all the other symptoms such as fever rapid pulse collapse and occasionally tympanites and although the same symptoms may occur in cholecystitis and cholangeitis still the entire symptomatology of acute pancreatitis seen once leaves such an *impression* that should such a picture again present itself acute pancreatitis will at once be thought of, and this diagnosis will usually be correct

Cases occur which are diagnosed as cholangeitis and which are in reality pancreatitis, or a disturbance of the pancreas may be diagnosed which in reality is a cholecystitis At all times acute pancreatic necrosis in *comparison* with cholecystitis or cholangeitis is the more dangerous Operative procedure for the pancreatic necrosis must be undertaken first This consists of incision and tamponade

1 *Should the patient* be very weak a simple incision should be *made and* tamponade of the pancreas should be done As a rule this is all that can be done in severe cases

2 In cases not so severe a cholecystostomy is performed in addition to incision and tamponade of the pancreas The removal of the gallbladder and drainage of the common bile duct *are left for a possible* secondary operation

3 If the vitality of the patient is good operative procedure for the cure of the inflammation of the gallbladder and bile duct as well as the cure of the acute pancreatitis *can* all be undertaken. The *ideal method* is to expose the pancreas, liberally *incise* the area *affected*, tamponade and perform cholecystectomy and T-drainage of the common bile duct

Dr R. H C Gibbons New York In all cases of acute pancreatitis we cannot make a diagnosis until we open the abdomen which should be done quickly, *then* sufficiently deal with conditions *found* Remove gangrenous parts Establish drainage through a rubber glove, *into which carry* the *strong*-gauze tape.

Dr. William Linder Brooklyn As has been said, there are no pathognomonic signs or symptoms of acute pancreatitis *In the last two years* we *have* been able to make a correct diagnosis in 70 *per cent of our sixteen cases In the* early stage, surgery is of benefit, in the very acute cases the patients may die before reaching the operating table The pain in a severe case of acute pancreatitis is excruciating—severer than that of any other upper intra-abdominal condition

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Puncturing a Diet Dogma.—Another popular formula which has been elevated to the height of dogma is, "it is not what you eat but what you digest that is of importance." Since the normal person very completely digests all the common foodstuffs, there is little *to concern* one in this saying Repeated ignorantly from mouth to mouth, such a remark, even though true, comes to cloak many dietetic absurdities —Graham Lusk in *Science*

NEPHRITIS FROM THE STANDPOINT OF UREA EXCRETION*

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That nephritis and particularly the form commonly known as chronic interstitial nephritis, is associated with alterations in the excretion of nitrogenous waste products especially urea, has long been known During the past few years the introduction of simpler methods for quantitative determination of the nitrogenous constituents of the blood has led to numerous clinical studies of the condition now known as urea *retention* In its proper sense this *term* would imply a continuous positive nitrogen balance, with a constantly increasing amount of urea in the blood and tissues In actual use however, the term is applied to any condition associated with an increased concentration of urea in the blood without reference to the nitrogen balance, and the finding of a blood urea concentration higher than the average normal is called urea retention and is taken to indicate disturbed renal function

It is my purpose to attempt to make clear what actually *happens* in the condition of urea retention Urea retention in the sense in which the *term is now* used is not a continuous process of piling up urea in the body, due *to* an inability of the kidneys to excrete the large amounts of urea *formed in the body* As I shall show, the kidneys may be actually able to excrete far greater amounts of urea than they are ordinarily called on to do, even in severe cases of nephritis, while the condition known as urea retention exists in these cases at the lower levels of protein metabolism just as it does at the higher, even though in the former instance the blood urea figure may be used within normal limits

The credit for the present conception of the mechanism of urea retention is due to Widal and Javal[1] On their work were based the later studies of Ambard and Weill[2] and of myself[3]

Widal and Javal kept a woman, aged 34, under observation for four *months*, during which *time* the nitrogen balance was carefully observed The patient had been ill for one year with chronic *nephritis* They found that she came into nitrogen equilibrium readily after changes *in* diet, though somewhat more slowly than a normal person They also found that the concentration of urea in the blood bore a direct relation to the diet, and on a constant nitrogen intake was practically constant After changes in diet, the blood urea could be restored to the former level by a return to the original diet They succeeded in causing the concentration of urea in the blood to *increase* from 0 36 to 1 93 gm per liter by increasing the nitrogen intake *As a result of their experiment*, they concluded that the fluctuations in level *of* blood urea were due to the changes in diet, and that *the increased* concentration of urea in the blood, which occurred in response to increased nitrogen intake, effected the elimination of increased amounts of urea through the kidneys In other words, high *nitrogen intake*, relatively high blood urea, and high rate of excretion were found to be parallel and interdependent phenomena, as were low nitrogen intake, relatively low blood urea, and low nitrogen output The foregoing hypothesis received further support from the work of Ambard and Weill,[2] who demonstrated that the rate of urea excretion depends primarily on the concentration in the blood Numerous observers have confirmed the observation of Widal and Javal on the dependence of the concentration of urea in the blood on the level of protein intake

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* From the Hospital of the Rockefeller Institute for Medical Research

* Read before the Section on Practice of Medicine at the Sixty Eighth Annual Session of the American Medical Association New York June 1917

[1] Widal F and Javal A Compt *rend* Soc. de biol, 1904 **57**, 301 303

[2] Ambard L. Compt rend Soc de biol 1910, **49**, 411, 506 Ambard L. and Weill A *Jour physiol* et path. gén, 1912 **14**, 753

[3] McLean F C and Selling, L. Jour Biol Chem, 1914, **19**, 31 McLean F C Jour Exper Med, 1915 **22**, 212 366, Clinical Determination of Renal Function by an Index of Urea Excretion, The Journal A M A Feb 5, 1916 p 415

We have carried out studies of two cases similar to the study made by Widal and Javal, but in addition we have studied the state of the urea excretion function, at various levels of protein metabolism, by the index of urea excretion previously described[3] The findings of Widal and Javal have been duplicated, and their conclusions confirmed, and we have shown that the state of the function of urea excretion remained unchanged during the experiments, though great changes in the concentration of urea in the blood were observed

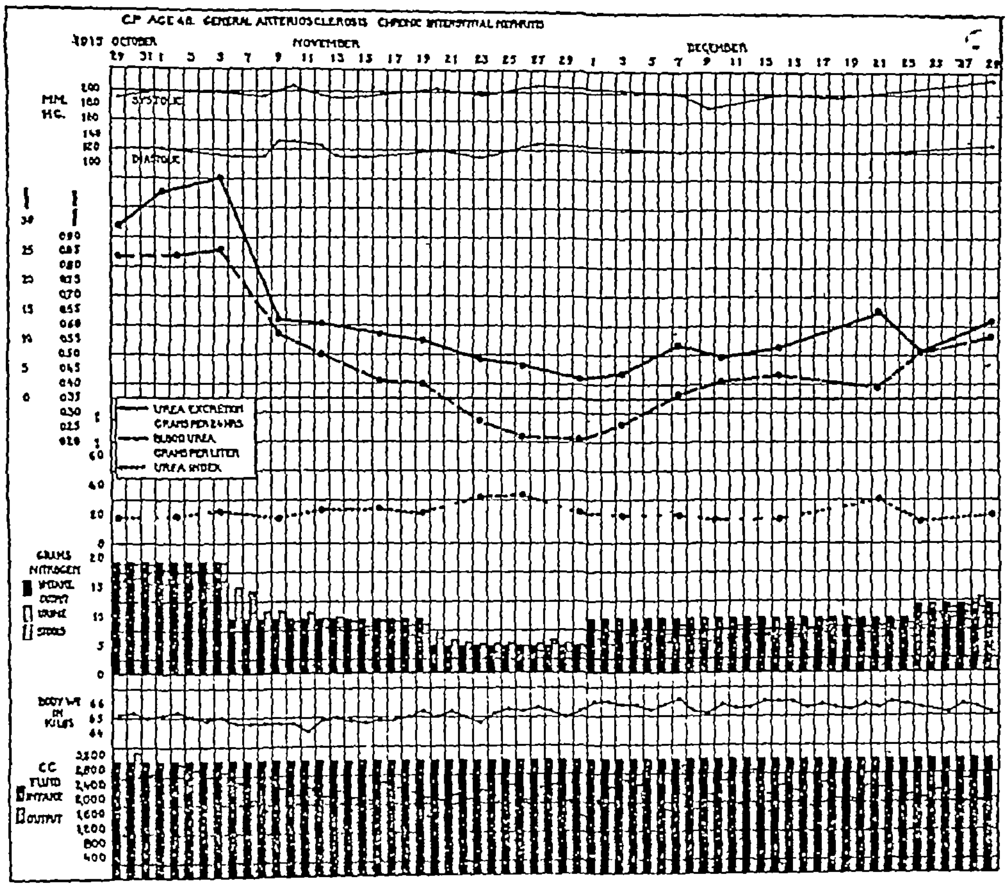

Chart 1—Findings in Case 1

METHODS OF OBSERVATION

The two patients studied had chronic nephritis, and were selected on account of an impairment of the function of urea excretion Both were able to excrete large amounts of urine They were both ambulatory patients, bore the strict dietary regimen well, and showed no change in general condition at the end of the experiment Both are still alive, more than a year after the conclusion of the experiments, and are in practically the same condition as at that time

On account of the length of the experiments, the diet was varied more than is usual in metabolism experiments, but strict analysis was made of the protein-containing foods The chlorid and fluid intake were kept constant Urine and stools were collected in twenty-four hour periods and analyzed daily for nitrogen Blood urea was determined about twice a week, with a simultaneous urine analysis on a carefully timed specimen, in order to compute the index of urea excretion[4]

The chief findings included in the two studied are given in the accompanying charts illustrating the two cases[5]

REPORT OF CASES

Case 1—C P, man, aged 48, with general arteriosclerosis and chronic interstitial nephritis, first admitted to the hospital, Sept 14, 1915, and kept under observation until June 5, 1916, complained of general weakness and loss of *weight*, which had been progressing for four or five years There was found an advanced grade of general arteriosclerosis The urine was clear, straw-colored and neutral, the specific gravity was 1 011 There was a heavy trace of albumin, but no sugar Hyaline and finely granular casts were present, but not in large numbers No red blood cells were found The total elimination of phenolsulphonephthalein was 30 per cent. in two hours, September 15 Chart 1 shows the principal findings during a period of observation from October 26 to December 29

Case 2—W F, boy aged 17 years, with chronic interstitial nephritis and aortic and mitral insufficiency, admitted to the hospital, March 27, 1916, seemed quite well, but was brought to the hospital on account of albuminuria This had been discovered about one year before, after a brother aged 18 years had died suddenly of uremia The patient had had three attacks of rheumatism, six, four and two years before Following the last attack he had heart failure, with edema of both legs No history of scarlet fever, measles or diphtheria was obtained On examination there were found the physical signs of mitral insufficiency but there were no signs or symptoms of heart failure The urine was clear, straw-colored and acid, the specific gravity was 1 012 There was a heavy trace of albumin and no sugar The sediment contained hyaline casts, leukocytes, and occasional red blood cells Chart 2 shows the principal findings during a period of observation from March 28 to June 11

COMMENT

The two cases are exactly similar Both show the essential features described by Widal and Javal in their case, that is, a close parallelism between *nitrogen intake, concentration* of urea in the blood, and nitrogen output A change in nitrogen intake was

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[4] The index of urea excretion is computed from the concentration of urea in the blood, the rate of urea excretion, the concentration of urea in the urine, and the weight of the patient, according to the following formula

$$\text{Index of Urea Excretion } (I) = \frac{8\,96 \times D\sqrt{C}}{Wt \times Ur^2}$$

D, gm of urea excreted per 24 hours,
C, gm. of urea per liter of urine
Ur, gm of urea per liter of blood,
Wt, body weight of individual, in kilograms For further details consult the description of the index in previous papers

[5] Complete data in regard to the two cases here illustrated are given in a paper to be published in the Journal of Experimental Medicine, July, 1917

always followed quickly by a change in the concentration of urea in the blood and in nitrogen output, so that nitrogen balance was reestablished on the new level In Case 2 there were produced extremely wide fluctuations in the concentration of urea in the blood, from a minimum of 0 262 gm per liter to a maximum of 2 542 This maximum is far above the level at which Hewlett, Gilbert and Wickett[6] believe that toxic effects of urea appear It would seem that this patient, having suffered for some time with chronic nephritis, should have shown uremic symptoms, if these symptoms are in any way referable to an increased amount of urea in the blood and tissues As a matter of fact, no effect was noted beyond an increased fluid output, a slight loss in weight, and increased thirst

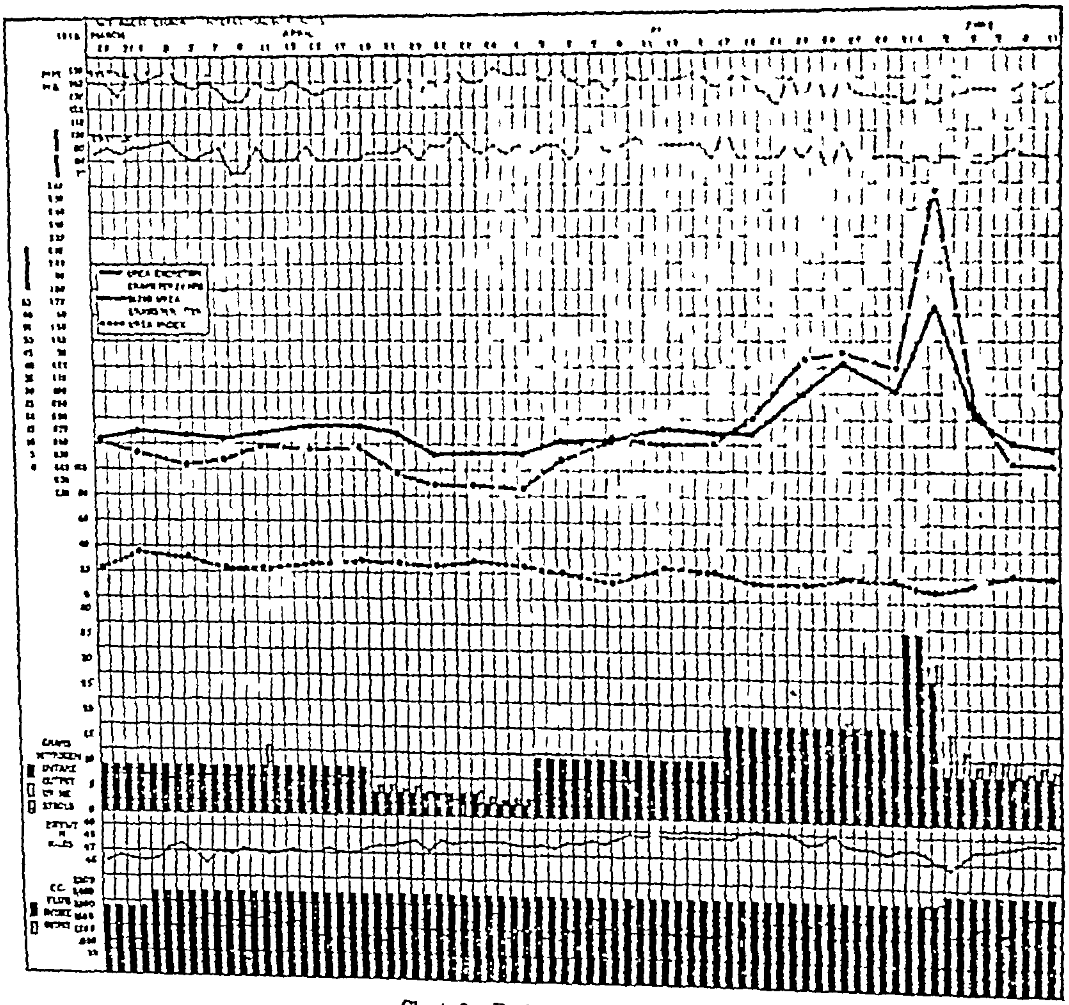

Chart 2—Findings in Case 2

The findings regarding urea excretion are of especial interest In Case 1, with a variation in blood urea concentration from a minimum of 0 211 gm per liter to a maximum of 0 855 gm, the index of urea excretion remained remarkably constant In eighteen observations with an average of 21 4, a figure below 16 4 is noted only once, and above 26 4 only three times These variations must be regarded as insignificant when the complexity of the formula and the possibility of error in the various determinations are taken into account In Case 2 there is a somewhat greater range of variation The most significant variation is that seen June 2, when the blood urea reached 2 542 gm per liter On this day the urea index was 8 3 instead of about 20 It would seem that here the maximum capacity of the kidneys to excrete urea had been exceeded and actual accumulation had begun This occurred, however, only when the nitrogen intake had been maintained at over 36 gm per day for two days

SUMMARY

The two cases confirm the findings of Widal and Javal, and add the fact that no essential variation in the ability of the kidneys to respond to even high concentration of urea in the blood at various levels of protein metabolism was demonstrable, until a very high level was reached, that is, the quantitative relationship that existed between the concentration of urea in the blood and the rate of its excretion remained the same at all levels of protein metabolism

It has been demonstrated, therefore, that a relatively increased concentration of urea in the blood follows the increased resistance with which diseased kidneys oppose the passage of urea When, as the result of feeding an increased amount of nitrogen the concentration of urea in the blood rises a parallel increase in the rate of excretion of urea occurs When a point is reached at which the rate of urea excretion is kept equal to the rate of formation by the organism, the level of urea in the blood ceases to rise, and the organism remains in nitrogen equilibrium But when the nitrogen intake in the individual is diminished, urea is excreted for a time more rapidly than it is formed, until the level of urea in the blood falls, and reaches a point such that the rate of urea excretion is again equal to the rate of urea formation, and the organism is once more in nitrogen equilibrium This experiment illustrates the events occurring in the so-called retention of urea

CONCLUSIONS

1 Urea retention in the sense of a relatively increased concentration in the blood is the result of increased resistance to the excretion of urea through the kidneys

2 The relatively increased concentration of urea in the blood overcomes the increased resistance to

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[6] Hewlett, A. W. Gilbert Q O and Wickett A D The Toxic Effects of Urea on Normal Individuals Arch. Int. Med. November 1916 p 636

excretion, and the organism is thereby maintained in nitrogenous equilibrium

3 The laws formulated by Ambard in regard to urea excretion apply in the condition of urea retention under a widely varying range of conditions, as to nitrogen intake and excretion

4 The numerical value of Ambard's constant changes in urea retention, but the relation of the variable factors to one another remains otherwise unchanged

5 The occurrence of a high concentration of urea in the blood is not necessarily accompanied by any symptoms suggestive of uremia

DIETETIC TREATMENT OF NEPHRITIS

CONTROLLED BY CHEMICAL EXAMINATION OF THE BLOOD *

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AND

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It has long been recognized that the regulation of the diet is a very important part of the treatment of nephritis The exact direction which such regulation should take depends on the form of involvement of the diseased kidney In parenchymatous nephritis, where the normal elimination of water and salt is impaired, dietary restriction of these substances is designed to reduce the tax on the kidney to the lowest terms The planning of the diet presents no special difficulties, since water is limited by excluding beverages and other fluid foods, and the chlorin intake is greatly reduced by the simple expedient of not adding salt to the food served to the patient and not including in the ration certain vegetables known to be conspicuously high in this element, such as lettuce and celery The daily requirement for chlorin is very small, and the chief point to be emphasized is the maintenance of the patient's strength by an adequate energy supply In interstitial nephritis the most characteristic phenomenon is the lowered permeability of the kidney for the nitrogenous constituents of the urine The more protein there is in the diet, the more these substances accumulate in the blood, overtaxing the kidney and causing intoxication of the whole organism Hence, the first dietary consideration in these cases is limitation of the nitrogen intake

The present investigation has been conducted with persons suffering from interstitial nephritis As already pointed out,[1] the intensity of this disease can be very accurately ascertained by estimating the amounts of the uric acid, urea and creatinin in the blood The blood of normal persons before breakfast, on a moderate protein intake, contains approximately from 1 to 3 mg of uric acid, from 12 to 15 mg of urea nitrogen and from 1 to 2 mg of creatinin per hundred c c of blood If the blood analyses show a very appreciable excess over these figures, defective kidney function is suggested, while a considerable increase in these nitrogenous waste products is positive evidence of interstitial nephritis Reliable methods for the determination of these substances in the blood have recently been devised With these methods a comparatively large amount of data has been accumulated in our laboratory, and it would seem that we have ample reason to trust blood analyses for diagnosis, prognosis and guidance in treatment of these cases of nephritis As has been pointed out by Myers,[2] only advanced cases of interstitial nephritis show high values for the blood creatinin, thus lending valuable prognostic significance to this test Creatinin, being almost exclusively of endogenous origin, is less influenced by the intake of protein than is urea, and constitutes the most satisfactory criterion as to the deficiency of the kidneys and the most reliable means of following the course of the disease, while urea, being largely of exogenous origin, is more readily influenced by dietary changes and constitutes a most sensitive index of the response to treatment

The accumulating urea of nephritis is chiefly derived from the protein ingested, and the first consideration in planning the daily rations for a nephritic becomes the restrictions of his protein allowance For short periods in chronic cases or for tiding over a crisis, simple starvation may be practiced or the customary lemonade and sugar diet employed, but eventually the patient will be weakened by such a treatment and his chances of improvement and recovery diminished The actual minimum protein requirement of man is not very high, and in the early stages of the treatment, the nitrogen intake should be as little in excess of this as circumstances will permit Men at severe muscular labor have been maintained in nitrogen equilibrium for months on from 0 5 to 0 75 gm of protein per kilogram of body weight per day[3] This means that a mature man of average size need not consume more than 40 gm of protein a day, and under stress of circumstances can get along on less The exact amount of protein required varies with circumstances With an increase of total fuel, the level on which protein metabolism can be maintained is proportionately lowered This is due to the well known "protein-sparing" effect of carbohydrates and fats, a principle generally applied in agricultural practice in milk and beef production For this reason a lemonade and sugar diet is better than simple starvation

Another significant factor in the total nitrogen requirement is the chemical constitution of the individual proteins which enter into the food supply Osborne[4] has made an extensive study of the vegetable proteins, and has found that these differ markedly in the number and proportions of the amino acids which compose them Osborne and Mendel,[5] using isolated pure proteins in feeding experiments, have made some very significant discoveries, establishing definitely that each kind of protein has a value in nutrition dependent on the number and proportions of amino acids found in it, thus the absence or deficiency of lysin renders

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* From the Department of Medicine and the Laboratory of Pathological Chemistry, New York Post Graduate Medical School and Hospital

* Read before the Section on Practice of Medicine at the Sixty Eighth Annual Session of the American Medical Association, New York, June, 1917

[1] Chace, A F, and Myers, V C The Value of Recent Laboratory Tests in the Diagnosis and Treatment of Nephritis, THE JOURNAL A M A, Sept 23, 1916, p 929

[2] Myers V C, and Lough, W G The Creatinin of the Blood in Nephritis Its Diagnostic Value, Arch Int Med, November, 1915, p 536

[3] A minimum nitrogen requirement has been determined in a number of laboratories The work of Hinhede and his co-laborers may be specially mentioned This work is compiled in a table by Rose M D S Jour Biol Chem, 1917, **30** 202

[4] Osborne The Vegetable Proteins London 1909 Abderhalden Biochemisches Handlexicon, Berlin 1911, **4**, 1 52, 1914 **9**, 1 11, Carnegie Institute of Washington, 1907, Pub 84

[5] Osborne and Mendel Carnegie Institute of Washington 1911, Pub 156 Mendel, L B Nutrition and Growth THE JOURNAL A M A, May 8 1915, p 1539

the protein inadequate for the support of growth, the absence of tryptophan makes it incapable even of maintaining the adult organism. Such incomplete proteins must be supplemented either by the lacking amino acid or by another protein whose amino acid content is such as to supply the missing constituent. The foods as we eat them contain more than a single kind of protein. An inadequate protein may be supplemented in a satisfactory fashion by another in the same foodstuff, or it may require the addition of something not represented in that particular food material. Feeding experiments on growing animals conducted in a manner similar to those of Osborne and Mendel but with single foodstuffs instead of isolated proteins, reveal the possible disastrous consequence of monotony in the diet if the proteins in the food are incomplete.[6] Thus oats, as the sole source of protein in a diet otherwise adequate, will not support growth in young animals, but the addition of casein renders the oat ration satisfactory. Casein is a protein of high biologic value, excelled in efficiency only by lactalbumin. Gelatin, on the other hand, has a very low value when used alone, being unable to support either the young or adult organism. However, McCollum reports that it takes less gelatin to supplement a given amount of oats satisfactorily than it does of casein. In our present state of knowledge it is unsafe to predict as to the biologic efficiency of any untested combination of proteins in food. Even the highly regarded navy bean has been shown by McCollum[8] to be deficient in capacity to sustain the nitrogen metabolism, as evidenced by stunted growth of young animals fed on diets in which beans are the sole source of protein. It would seem prudent to consider that our nutritional safety lies in the use, in a restricted ration, of proteins whose efficiency has been well demonstrated, as those of milk, eggs or meat, or in a *variety of proteins* from vegetable sources, preferably combined with milk proteins.

TABLE 1.—OUTLINE OF DIETS*

Morning	Noon	Evening
Citrus fruit Cereal Farina oatmeal or banana Cream Toast Beverage	Cream soup Plain rice, celery, asparagus, spinach Chief vegetable White potato, baked or mashed with butter, sweet potato, banana Lettuce salad with oil Cocoa	Rice, steamed with cream, or baked banana or as pudding Corn starch, blanc mange and cream Banana Milk

* Other food may have been included in this outline, and of those included not all are to be considered on a par. Farina should be given more often than oatmeal. Of the soups, the plain soup or cream of rice or potato are preferable, but to break the monotony, celery or asparagus may be served on rare occasions. In green vegetables the spinach and string beans are the best and the other two listed to be used as an occasional indulgence.

In recent years we have also come to realize that the mineral metabolism is a very important factor in nutrition. McCollum[9] fed young animals a diet of corn and purified casein, and found that they soon ceased to grow. When a suitable salt mixture was added they made rapid progress and soon attained normal weight for their age. Wheat, oats and beans have also been shown to require some adjustment of their ash content before they will support normal growth.

In monotonous feeding of single kinds of food or a limited number of foods of certain types, pathologic conditions set in which are due to other factors than inadequacy of protein or mineral content. These are attributed to minute quantities of certain organic substances known as food accessories or vitamins. McCollum[10] has shown that there are two substances required for growth, one soluble in water, the other associated with the ether-soluble fraction of the food. Besides these we have a third accessory whose absence manifests itself by the symptoms of scurvy. A liberal variety of fruits and vegetables eliminates the danger of omitting this element of an adequate diet.

In feeding animals excellent results can be obtained from a simple monotonous dietary, provided all the essentials of a well balanced ration are represented, that is, a full energy supply, protein and ash in suitable kinds and amount, sufficient ballast and food accessories. In feeding the human subject there are also psychologic considerations which cannot be altogether disregarded, and some provision must be made for variety to secure the best results. Our work has been based on the assumption that the patient should be given a minimum amount of medication, and kept at rest and as cheerful and contented as circumstances permit. As the meals are generally the patient's chief diversion they should be made agreeable and interesting by suitable variety in choice of food and manner of serving.

The food should supply the full quota of nutrients for a person at rest, while the load on the kidneys should be reduced as much as is compatible with physiologic well-being. The average man at rest will require about 2,000 calories per day. Nephritics without edema, do not differ from normal persons in their fuel requirement.[11] In severe cases the protein intake should be placed low at first, not exceeding 30 gm. per day. Later it may be raised to 50 or 60 gm. The diet has been salt-free in the sense that it includes only the sodium chlorid naturally occurring in the food materials used; none has been added for seasoning.

TABLE 2.—DISTRIBUTION OF MINERAL ELEMENTS IN SOME HIGH AND LOW PROTEIN FOODS*

Food	Protein per Cent	Calcium per Cent	Phosphorus per Cent	Chlorin per Cent	Iron per Cent	Ash Balance in Terms of Normal Solution C.c.
Asparagus	1.8	0.029	0.039	0.010	0.0010	Base 0.81
Bananas	0.4	0.007	[illegible]	0.[illegible]	0.0006	Base [illegible]
Butter	1.0	0.014	0.013	0.00[illegible]		
Carrots	1.1	0.0[illegible]	0.044	0.0[illegible]	0.0008	Base 10.8
Celery	1.1	0.071	0.044	0.170	0.0[illegible]	Base [illegible]9
Citrus fruit	0.5	0.0[illegible]	0.017	0.010	0.0001	Base 7.0
Lettuce	1.2	0.0[illegible]	0.039	0.0[illegible]	0.0010	Base [illegible]4
Potatoes, white	2.2	0.011	0.0[illegible]1	0.0[illegible]	0.0012	Base [illegible]
Potatoes, sweet	1.8	0.015	0.039	0.1[illegible]0	0.00[illegible]	Base [illegible]
Prunes, dried	2.1	0.013	0.011	0.010	0.0025	Base [illegible]
Raisins, dried	2.0	0.0[illegible]7	0.123	0.0[illegible]0	0.00[illegible]	Base 23.7
Spinach	2.1	0.0[illegible]	0.037	0.010	0.0022	Base 27.1
Cream (18.5%)	2.5	0.100	0.0[illegible]0	0.100	0.0[illegible]0	Base 1.2
Milk	3.3	0.121	0.09[illegible]	0.1[illegible]0	0.0002	Base 1.9
Barley, pearl	8.5	0.018	0.200	0.0[illegible]0	0.0013	Acid 10.3
Corn meal	9.2	0.011	0.142	0.0[illegible]0	0.0011	Acid 3.7
Oat meal	16.7	0.0[illegible]3	0.381	0.03[illegible]	0.00[illegible]	Acid 10.6
Rice	8.0	0.009	0.057	0.0[illegible]0	0.0009	Acid 8.1
Rye flour	6.8	0.0[illegible]0	0.3[illegible]9	0.0[illegible]0	0.0010	
Wheat flour	11.2	0.019	0.051	0.070	0.0015	Acid 0.6

* The data from which this table has been compiled are taken largely from Sherman: Chemistry of Food and Nutrition, New York, 1912.

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[6] McCollum, E. V.: The Supplementary Dietary Relationship Among Our Natural Foodstuffs, THE JOURNAL A. M. A., May 12, 1917, p. 1379.

[7] McCollum, Simonds and Pitz: Jour. Biol. Chem., 1917, **29**, 343.

[8] McCollum, Simonds and Pitz: Jour. Biol. Chem., 1917, **29**, 521.

[9] McCollum, Simonds and Pitz: Jour. Biol. Chem., 1916, **28**, 154.

[10] McCollum, Simonds and Pitz: Jour. Biol. Chem., 1917, **30**, 13.

[11] Aub, J. C.; Du Bois, E. F., and Soderstrom, G. F.: Respiratory Metabolism in Nephritis, Arch. Int. Med., May, 1917, p. 865.

purposes [12] The meals have been selected as to insure the adequacy of the protein, ash and food accessories

The general plan of the dietary is as follows A warm, cooked cereal, generally farina served with milk, is given for breakfast This is sometimes replaced by oatmeal or a baked banana, and toast and a citrus fruit are occasionally added The noon meal consists of a plain soup made from milk, flour and butter, given mainly to supply an agreeable hot dish, though it is also utilized as a medium for introducing variety, by adding celery, asparagus or spinach, a main dish consisting of baked potato, now and then replaced by baked half-ripe banana and steamed rice, a liberal portion of green vegetable and a lettuce salad with oil dressing, flavored with lemon or vinegar The evening meal is composed of such articles as ripe bananas, rice pudding, cornstarch blanc mange, steamed rice with baked bananas and stewed fruit Milk and cocoa in limited quantities are served as beverage This general plan is outlined in Table 1 From this outline some twenty diets have been prepared These diets have been used in our experimental work, and for this reason have been given more monotonously than would ordinarily be required or desirable By careful arrangement they can be made to furnish considerable variety without unduly taxing the cuisine of a hospital or sanatorium No dietary program of this sort should be considered as fixed, but made sufficiently elastic to meet the market conditions and, what is more important, the patient's digestive conditions It seems to be a common experience that the nephritic patient is particularly susceptible to gastro-intestinal disturbances, and the dietary should irritate the alimentary tract as little as possible The individual's peculiarities and gastro-intestinal conditions are to be considered in prescribing a diet

TABLE 3—THE FIRST TWO DIETS FOR SEVERE CASES

Juice from 1 lemon,
⅔ cup water,
6 tablespoons lactose
(1 tablespoon cane sugar)
Serve 4 times a day
Calories 1,424 Ash alkaline Iron, 0.8 mg

Morning		Noon		Evening	
Banana	300 gm	Cream soup	200 c c	Banana	300 gm
Cream	100 c.c.	Banana	300 gm	Cream	100 c c
Cocoa	200 c c.	Milk	200 c.c.	Cocoa	200 c c.

Calories, 1,585 Protein, 35 4 gm Ash, alkaline, 15 6 n Iron, negl

TABLE 4—HOW MENUS ARE CONSTRUCTED FROM TABLE 1*

Morning		Noon		Evening	
One half orange		Cream of asparagus soup	200 c c.	Banana, ripe	400 gm
Oatmeal	200 gm	Potato, baked and mashed with butter (50 gm)	200 gm	Milk	240 c c
Toast, butter	1 slice	Green vegetable, spinach		or	
Cream, 18 5%	50 c c	Milk	200 c c	Cornstarch blanc mange	200 gm
Milk	100 c c			Cream	50 c c
				Bread and butter	33 gm
				Cocoa	200 c c.

Between meals, 1 slice buttered toast and 200 c.c cocoa

Calories, 2,348 Protein 53 gm Alkaline, ash, approx 50 n
Iron, over 15 mg

Morning		Noon		Evening	
Cream of wheat	150 gm	Cream of celery soup	200 c c	Banana	400 gm
Banana	200 gm	Baked potato	200 gm	Steamed rice	100 gm
Bread and butter	33 gm	Butter	1 tbsp	Cream, 18 5%	100 c c
Cream	100 c c	Spinach	liberal porton	Milk	200 c c
		Cocoa, ½ milk	200 c c		

Calories, 2,085 Protein, 39 7 gm Ash, alkaline, 86 n Iron, 15 5 mg

* The recipe for the lemonade in Table 3 and the data for this table are taken from Rose M D S Feeding the Family, New York, 1916, and Laboratory Hand Book of Dietetics

TABLE 5—BLOOD FINDINGS IN INTERSTITIAL NEPHRITIS*

Date, 1915	Creatinin, Mg per 100 C c Blood	Urea Nitrogen Mg per 100 C c Blood	Remarks
February 24	8 3	55	Standard parenchymatous diet
March 1	6 5	63	
March 6	5 8	89	
March 19	6.5	51	
March 25	6 1	51	
April 8	8 0	61	
April 16	11 0	144	

* J W, aged 34, sickness fifteen months prior to admittance to hospital, edema, nausea, vomiting, constipation blood pressure 222 132 albuminuria, casts, phenolsulphonephthalein test, 2 per cent

The diet scheme includes grains (seeds), tubers and stems (including leaves) of plants, and therefore supplies all necessary food accessories or vitamins [13] Several kinds of plants are drawn on, and these, together with the amount of milk allowed, will insure the supplementing of all the proteins of low biologic value Greens are liberally supplied, in part, to furnish fiber for ballast, but more for the important mineral matter which they carry In many instances the patient's stomach is sensitive to these vegetable foods when fed in natural form, as they should normally be consumed and it becomes desirable to puree them When constipation results from too little inert matter in the food, liquid petrolatum is prescribed in

TABLE 6—BLOOD FINDINGS IN INTERSTITIAL NEPHRITIS*

Date, 1915	Creatinin, Mg per 100 C c Blood	Urea Nitrogen Mg per 100 C c Blood	Remarks
January 22	7 8	60	1,200 c c. lemonade
January 27	10 0	67	Cereal (200 gm), bread and butter, 5 slices, potato cocoa (400 c c)
January 30	8 9	77	
February 8	8 4	72	Same diet plus 240 c c cream soup 2 glasses milk, matzoh sugar and syrup
March 9	11 0	97	
March 16	11 4	120	Patient given free choice as to diet
March 19	14 1	131	
March 23	20 5	152	

* T D aged 31, sickness six months prior to admittance to hospital eyesight impaired, epigastric pain, nausea, blood pressure, 225-150 small amount of albumin in urine, casts, phenolsulphonephthalein test, 2 per cent

TABLE 7—BLOOD FINDINGS IN INTERSTITIAL NEPHRITIS*

Date, 1916	Creatinin, Mg per 100 C c Blood	Urea Nitrogen Mg per 100 C c. Blood	Remarks
February 11	8 5	55	Standard interstitial nephritic diet
February 18	11 9	60	
February 28	12 5	76	
March 3	11 4	74	
March 7	10 4	60	
March 28	10.8	48	Standard parenchymatous diet
March 31	9 6	45	
April 7	9.5	39	
April 14	8 2	34	
April 25	10 0	45	
April 28	10 0	48	Lemonade
May 10	11 4	56	
June 9	9 6	68	

* W W, aged 30 edema, poor eyesight, polyuria heart displacement blood pressure 208-155, pronounced albuminuria, hyaline casts, phenolsulphonephthalein test, 1 per cent

preference to salts or other drugs. The distribution of the ash elements in the vegetable foods is indicated by Table 2, and the desirability of the inclusion of greens is emphasized. The most conspicuous food element supplied by these is the iron. This substance is particularly needed in abundance to help diminish the anemic condition so conspicuous in these cases. Normally an adult's requirement is reckoned at 15 mg. per day,[14] and nephritis certainly should not have less. Another characteristic of interstitial nephritis is a tendency to acidosis. Besides having a sufficient amount of ash constituents present, these should be so grouped quantitatively that their reaction does not aggravate, but as far as possible, tends to neutralize the acid condition. Sherman[15] and his co-workers have made a study of the reaction of the food ash and the last column of Table 2 is compiled from data which they have gathered. It is to be noted that roots, tubers, stems and pericarps, grouped at the top of the table, are predominately alkaline, whereas the seeds, grouped at the bottom, are strikingly of the opposite reaction, due to their higher phosphorus content and the sulphur from their abundant protein. The diet should, therefore, be arranged to contain more of the former than of the latter.

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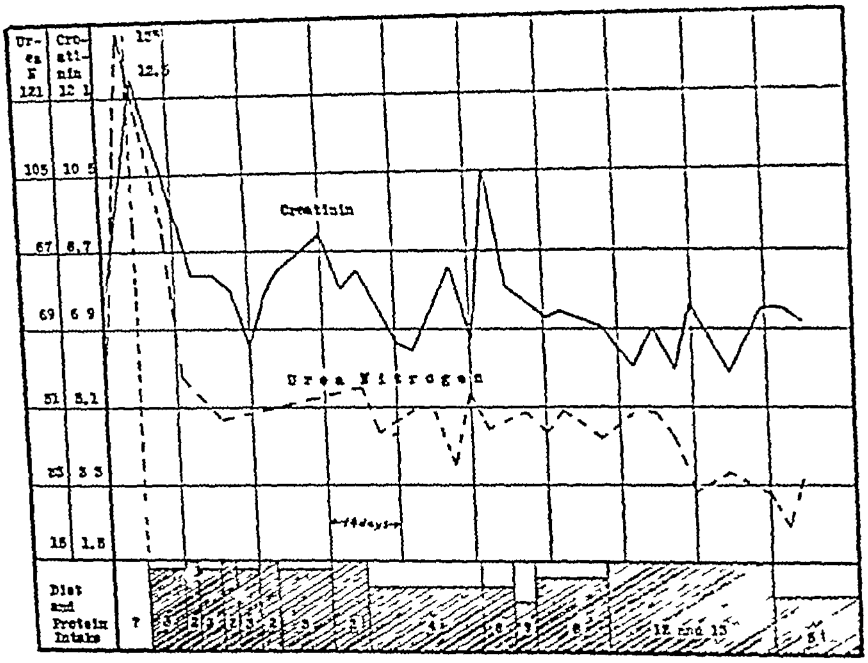
[12] In nephritis, when there is no tendency to edema, the salt restriction need not be so severe.

[13] McCollum (Footnote 6), McCollum, Simonds and Pitz (Footnote 10)



Influence of the diet on the creatinin and urea in the blood in J. B., man, aged 34

The diets, as planned, have a relatively high calcium content, desirable not only to meet the daily requirements for this element, but also to divert the elimination of phosphorus from the kidney to the intestine, as this element is sometimes eliminated with difficulty by an impaired kidney. Phosphorus is strikingly essential in cell life and its absolute restriction for a protracted period would hardly seem wise. But since the elimination of the phosphorus is not confined to the kidney, occurring also by way of the intestine in the form of dicalcium and tricalcium phosphate, appreciable amounts of the phosphate intake may be shifted from the kidneys to the intestine by having an alkaline ash rich in calcium.[16] In this connection it is needless to suggest that for such cases the bread supplied should not be raised by phosphate baking powder.

TABLE 6—RECENT CASES OF INTERSTITIAL NEPHRITIS

Patient	Date, 1917	Creatinin Mg. in 100 C.c.	Urea Nitrogen Mg. in 100 C.c.	Remarks
H. O. [illegible]	May 9 May 1 May 15 May [illegible] May [illegible] May [illegible] June 1 June [illegible] June 1	4.9 [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]	[illegible]	Gastric symptoms [illegible]
[illegible]	Apr. [illegible] May 1 May [illegible] May 1 May 2[illegible] June 1 June 8	[illegible]	41	[illegible]

H. O. [illegible] weight [illegible] blood pressure [illegible] trace of [illegible] test [illegible] small [illegible] of albumin in urine [illegible] phenolsulphonephthalein test [illegible] per cent.

In severe cases it is well to begin the dietary treatment with a ration that is free from protein, such as lemonade, and follow this with a mild food easy to take and low in protein. Ripe bananas have been found very serviceable for this purpose. Lemonade and banana diets are shown in Table 3. In the lemonade the sugar is added more for sweetening than for its calories and may well be replaced wholly or in part by lactose, which is to be preferred to sucrose in that it is apt to be less irritating and will add materially to the fuel value of the ration. In ripe bananas we are fortunate in having a fruit which is mild in flavor and can, therefore, be taken in quantity for a number of days without creating aversion; it has also a high caloric value with very low protein content and an alkaline ash. Because of the small margin between its alkaline earths and phosphorus, it should be served with a little milk to increase the calcium. Table 4 shows how diets may be

TABLE 0—FINDINGS IN INTERSTITIAL NEPHRITIS*

Date, 1916-17	Creatinin Mg. per 100 C.c. Blood	Urea Nitrogen Mg. per 100 C.c. Blood	Protein Intake	Diet
Dec. 22-26	7.4	61		
Jan. 5	9.7	135		
Jan. 9	12.5	110		
Jan. 12	11.1	110	49	Banana and milk
Jan. 16-23	8.8	75	49	The same alternated with Diet 2
Jan. 23-Feb. 6	7.6	60	49-51	
Feb. 9-20	8.4	54	49-51	
Feb. 23-27	7.7	53	49-51	
Mar. 2-9	6.7	50	49-51	
Mar. 13-16	7.4	45	49-51	
Mar. 20	10.6	46	49-51	
Mar. 23-30	7.4	47	40	Diet 4
Apr. 13-17	6.4	45	25-40	Diet 8-9
Apr. 20-30	6.8	41	52	Diet 12-13
May 8-22	6.6	31	52	Diet 12-13
May 29-July 15	6.8	33	52	Diet 12-13

* J. B., man, aged 34; edema, headache, dyspnea; blood pressure, 204/130; albuminuria; hyaline and granular casts; phenolsulphonephthalein test, 3 to 10 per cent.

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[14] Sherman: Chemistry of Food and Nutrition, New York, 1912.

[15] Sherman and Sinclair: Jour. Biol. Chem., 1907, 3, 307. Sherman and Gettler: Jour. Biol. Chem., 1912, 11, 323.

[16] Forbes and Keith: Ohio Agric. Exper. Sta., Tech. Series Bull. 5, p. 203, 1914.

constructed from Table 1 Bananas may with profit enter frequently into the subsequent diets, but bananas, if served raw, must be thoroughly ripe[17] For convenience and economy, especially in an institution, it is desirable to purchase the fruit by the bunch If, however, consumption is delayed until the bananas are fully ripe, some loss is apt to occur through the rapid ripening Investigations in this laboratory afford convincing evidence that the bananas can be used with perfect success if they are cooked, hence use of a bunch may begin as soon as yellowing commences This will tend to increase the variety of the diet, since they may be served warm When baked, they have a distinctive texture and flavor, which further varies with the degree of ripeness

The blood findings in three typical severe cases of interstitial nephritis are shown in Tables 5, 6 and 7 These patients were kept on monotonous low protein diets It has hitherto been an almost invariable rule that patients with such unfavorable creatinin content in the blood have succumbed in comparatively short time In Table 8 are given the most recent cases of advanced nephritis in this hospital After the first week these patients have been kept on a dietetic system conforming to the ideas expressed in this paper There has not been as prompt and favorable response to this treatment as one could wish, but the trend is in the right direction A detailed study has been made of the case represented by Table 9 and the chart This patient was in a very critical condition when he arrived at the hospital, with the creatinin and urea rising rapidly He was placed on bananas and milk alternately every three days with cereal, potatoes, cornstarch and milk There was an apparently immediate response as to urea, and a later response as to the creatinin The patient was anemic, with a blood count of red cells of some 3,300,000 and hemoglobin at 55 per cent These have since increased to 4,200,000 and 65 per cent, respectively The physical condition of this patient is at present much improved The figures in the table are in most instances averages These, and the inclination of the curves, though not striking, are nevertheless encouraging, and although there is no immediate sign of arrest or recovery from the disease, it indicates a possibility of treatment which may well be of importance in earlier stages and milder cases It is not strictly fair to draw conclusions as to mild cases from these severe ones, but in the former we have no such tangible means of noting progress From the foregoing considerations and the findings of the blood analyses here reported, as well as the cases mentioned in a former paper,[17] we feel justified in thinking that a rational system of dietetics in cases of interstitial nephritis, which are not too advanced, may lead to a material reduction of fatal eventualities

SUMMARY

A scheme of dietetic treatment for nephritis, based on the more recent advances in the field of nutrition, and tested in advanced cases of interstitial nephritis in this hospital, has had encouraging results thus far The patients used in the test have been followed not only by the usual clinical observations at the bedside, but also by frequent chemical examination of the blood The determination of creatinin and urea nitrogen affords an excellent and convenient means of gaging the kidney's capacity to eliminate nitrogenous waste products and noting the response of the nephritic to treatment The plan provides a diet adequate in calories, protein, mineral elements and food accessories To attain this, a variety in the menu has been insisted on This insures a happier and more content attitude on the part of the patient, the inclusion of all the requisite vitamins and the complementing of biologically incomplete proteins At least one hot dish is provided each day by giving a bowl of cream soup Green vegetables are given to bring the iron intake in excess of 15 mg per day The sum total of the day's ash constituents should be decidedly alkaline in reaction and rich in calcium Foods high in phosphorus are discriminated against, though not strictly barred, as are also foods of striking flavors The day's energy requirement should add up to at least 2,000 calories, and the protein should not exceed 60 gm

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THE NATURE AND TREATMENT OF CHRONIC PARENCHYMATOUS NEPHRITIS (NEPHROSIS) *

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The term "chronic parenchymatous nephritis" is ordinarily applied to a variety of renal diseases which pathologically may be widely different in character Thus cases of chronic diffuse nephritis, of amyloid kidney and of chronic nephrosis are grouped under a single heading According to modern conceptions, chronic diffuse nephritis constitutes an inflammatory process involving all the kidney structures—glomeruli, tubules and interstitium, the other types represent degenerative processes, in one of which (chronic nephrosis), the lesion chiefly affects the tubules, and is not at all inflammatory

The reason for the use of a single term in designating such distinct pathologic conditions is the fact that clinically these cases have a number of features in common the oliguria, the intense albuminuria, and the edema Certain diagnostic criteria have been established for differentiating one variety from another[1] Thus in chronic nephrosis, it is said, the urine is free from formed blood elements and the blood pressure is not elevated In practice a differentiation on these criteria is not always feasible, for cases are encountered in which the basic disturbance resembles that of chronic nephrosis, whereas in other respects the existing conditions do not fulfil the requirements of the classification

It is stated also that, etiologically, chronic nephrosis differs from the other varieties in that its origin is obscure or unknown It bears no definite relation to the known infectious diseases The kidney of pregnancy is often cited as an example of this type of renal disease, and in view of the fact that certain anatomic peculiarities in diseased kidneys are characteristic of different causes, it is surmised that the degenerative process in the kidneys in this affection is due to an intoxication, because of the similarity of the lesion to that produced by certain mineral poisons

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[17] Myers and Rose The Nutritional Value of the Banana, The Journal A M A, April 7, 1917, p 1022

* From the service of Dr N E Brill

* *Read before* the Section on Practice of Medicine at the Sixty Eighth Annual Session of the American Medical Association, New York June 1917

[1] Volhard and Fahr Die Brightsche Nierenkrankheit, Berlin, Julius Springer, 1914

From a comprehensive study of the blood, of effusions, and of the urine, in this and other forms of renal disease[2] some light was gained concerning the morbid processes of this peculiar affection In a series of 193 cases representing various renal conditions, which I have had occasion to observe in the past few years, the type of disease under discussion has been encountered in fifteen individuals It appears from these observations that the pathologic and chemical basis of the cases now termed "chronic nephrosis" is that of a nutritional or constitutional disorder Furthermore, the evidence acquired also points to the probability that certain cases of diffuse nephritis represent a form of renal disease in which some of the morbid phenomena correspond to those found in chronic nephrosis whereas others are secondary to or associated with inflammatory changes in the kidneys

The most striking phenomenon in this group of renal diseases is the intense and persistent albuminuria The quantity of albumin excreted in the urine is often great Its daily output for weeks and months may amount to as much as 50 gm The source of the albuminous substances in the urine is the blood serum or plasma In view of the fact that the total quantity of protein in the blood serum, in a normal individual of average weight and size, is approximately 210 gm, the daily loss incurred by the blood in this manner may constitute a large percentage of that present in the circulation

Whether the excretion of these substances is due primarily to an altered protein utilization, or is the result of an unusual permeability of the renal epithelium, is a question which cannot be answered at the present time The fact remains, that as a result of the intense and prolonged albuminuria, profound changes take place in the composition of the blood The development of a state of malnutrition is evidenced by a number of facts Whereas normally the blood serum contains from 6 5 to 8 3 gm of protein to the hundred c.c, of which a little more than one third is globulin, in disease the quantity of protein may be much reduced and the globulins show a relative increase The characteristic change in the blood serum in cases of chronic nephrosis is a reduction in the total protein content with a marked relative increase in the globulin, which in certain instances constitutes nearly all of the protein present

TABLE 1—TYPES OF COMPOSITION OF BLOOD SERUM IN CHRONIC NEPHROSIS

Total Protein Gm	Incoag Nitrogen Gm	Per 100 Cc. Globulin Gm.	Per 100 Cc. Chlorid Gm.	Cholesterol Gm	Globulin in Protein Per Cent
3 611	0.065	2 038	0 404	0 760	59 0
2 731	0 101	2 598	0 390	1.226	95 0

A discussion of the causes which lead to this remarkable change in the blood serum must be left for another occasion It is known that infections and intoxications of various sorts lead to an increase in the proportion of globulin in the blood Hurwitz and Meyer[3] have found that the increase in globulins may result from the toxic action of infecting agents on the body tissues On the basis of other changes which occur in the blood, such as the accumulation of fatty substances, the increase in the globulin content indicates a tissue disintegration The quantity of fats and lipoids, which accumulate in the blood in this disease is extraordinary[4]

In no other condition of renal disease are such changes in the blood serum encountered What concerns other substances in the blood namely, nonprotein nitrogen and the chlorids, it might be said that these often range within normal limits or may be slightly elevated One reason for the low concentration of nonprotein nitrogen in the blood may be a large distribution of this constituent throughout the body in the edematous tissues That this is so is illustrated by the following clinical observation

The blood of a patient suffering from a severe nephritis with symptoms of impending uremia (visual disturbance violent headaches vomiting) and a generalized edema was examined and found to contain 0 070 gm of nonprotein nitrogen per hundred c c Ten days later when many of the symptoms disappeared and the edema partly subsided the blood contained 0 210 gm of nonprotein nitrogen per hundred c c Finally two weeks after the second examination when the patient was much improved and the edema had entirely subsided the nonprotein nitrogen of the blood was 0 070 per hundred c c

It is usually stated that, in cases of chronic nephrosis the urine may have a high specific gravity that it may contain normal quantities of nitrogenous urinary substances, but that it is deficient in chlorids According to Widal[5] this is one of the characteristic features of the disease

In discussing the classification of this group of nephritic conditions I stated that there are certain cases of diffuse nephritis in which some of the manifestations resemble those found in chronic nephrosis, while others are referable to inflammatory changes in the kidneys Examples of this type are found particularly in two groups of conditions first, during or after pregnancy, and second in association with diabetes mellitus The first occurs in relatively young women who, in the course or directly after a pregnancy, develop renal disease I have had occasion to observe six cases of this type Not only do such cases show evidence of malnutrition as proved by the changes in the blood, but they also indicate the occurrence of disturbances in certain of the internal secretions As in the cases of chronic nephrosis, the albuminuria is very intense, but formed blood elements may occasionally be found The urine is scanty and of varying specific gravity, it is deficient in chlorids and may also show diminution in the nitrogen output The blood shows changes similar to those observed in chronic nephrosis, namely, the reduction in the protein content of the serum, the relative increase in the globulins and an excessive increment in fatty material Extensive edema develops, notwithstanding this fact, the nonprotein nitrogen of the blood in these cases may be considerably elevated

TABLE 2—TYPES OF COMPOSITION OF BLOOD SERUM IN CHRONIC DIFFUSE NEPHRITIS (MILD AND SEVERE CASES)

Total Protein Gm	Incoag Nitrogen Gm	Per 100 C c Globulin Gm	Per 100 C c Chlorid Gm	Cholesterol Gm	Globulin in Protein Per Cent
4 919	0 130	3 440	0 397	0 460	70 0
3 958	0 084	2 594	0 404	1 150	66 00

The blood pressure in the latter group of cases rises very high (240 mm of mercury) The other clinical features which suggest a disturbance of the internal carbohydrates are the most effective nitrogen sparers at our command By diminishing the protein destruction through the administration of such food, naturally the amount of nitrogenous end-products presented to the kidney for elimination is diminished, and the impaired renal function can cope more efficiently with the task demanded of it Alcohol, contrary to the accepted standards, has proved itself of value in these cases It raises the calories of the diet, does not furnish end-products which must be excreted by the kidney, and apparently produces no untoward symptoms

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[2] Epstein A. A. Jour Exper Med 1912 **16**, 719 1913 **17**, 444, 1914 **20** 334 Rowe, A. H The Albumin and Globulin Content of Human Blood Serum Arch Int. Med September 1916 p 455

[3] Hurwitz and Meyer Jour Exper Med, 1916, **24**, 515

[4] Epstein and Rothschild Am. Jour Pysiol, 1917 **42**, 586

[5] Widal Jour med. français, 1911, 5, 18

Dr Chace has discussed many of the neglected factors of what constitutes a maintenance diet for these cases The hardest, and I think the most important problem of them all is the period in which we desire to build up our patients There is no great skill required in depleting these patients, or any great difficulty in giving them a maintenance diet, but to change the anemic, weakened sufferer with Bright's disease into a healthy, strong person is a different matter

As the result of increasing the protein food, we have been unable to note any effect whatever of increasing the blood pressure. At times, headaches of an intense nature may be produced, and have to be guarded against The greatest problem in this field today is to determine a method of feeding by which we may not only nourish, but also build up the patient suffering with nephritis The efforts of Dr Epstein constitute a step in this direction We must recognize, however, that many of the factors involved have as yet not been investigated, and, we may justly say, have scarcely been thought of

Dr E F Du Bois, New York The most significant point in Dr Chace's paper is the rational method of planning a diet for a disease The striking thing is that in most diseases there are comparatively small disturbances of the metabolism, of course, in diabetes there are profound changes, and in nephritis there is disturbance of the nitrogen elimination Most people neglect the fact that carbohydrate and fat metabolism are not changed, and also that the total caloric requirement is comparatively little influenced in most diseases For instance, the nephritic has about the same caloric requirement as the normal man Although the disturbance in the disease may be small, the disturbance in diet is tremendous, that is, the patient is put on a diet neglecting the palate and the stomach and the racial peculiarities in appetite. It is true that one can keep a nephritic on a restricted diet for a long time without developing any of the so-called deficiency diseases, but, on the other hand, one must consider the possibility of developing not a physical scurvy, but a kind of mental scurvy as the result of a diet which deprives the man of the articles of food he likes The caloric needs differ with the size of the man and the character of the nephritis. Most nephritics have about the same requirement as a normal man lying in bed, a few with parenchymatous nephritis have a lowered requirement, perhaps because of the lowered activity of the tissues For instance, if a man is on a diet of less than 1,200 calories, he is being undernourished If he is on a diet exceeding 2,000 calories he is overnourished and making up for previous loss

One fact in nitrogen metabolism which has escaped attention in this country is that Carl Thomas found that he could reduce his nitrogen excretion to about 3 gm a day and stay in nitrogenous balance if he took an exactly equivalent amount of nitrogen in his food in small divided doses This is suggestive, because the nephritic who is on a diet containing nothing but sugar certainly has an endogenous protein metabolism which is equivalent to 3 or 4 gm. of nitrogen a day, and it is possible that this may be replaced by proper protein in the food in such a way that no extra work is thrown on the kidneys I do not know of any experimental evidence in nephritis in regard to this point, but if the nitrogen in the food could be administered so that it merely replaced the wear and tear of the body, it would be a distinct advantage to the nephritic

Dr Victor C Myers, New York Dr McLean has presented some painstaking observations on urea, but his charts unfortunately did not give data for the blood creatinin as well The creatinin, on account of its endogenous origin, gives us a truer picture of the condition of nitrogen retention than the urea, and our experience has been that the blood creatinin and urea together give more information of value than the index of urea excretion Most of us have been so much interested recently in the common interstitial nephritis that we have given little thought and attention to the much less common parenchymatous nephritis I venture that most of us agree, in general, with the deductions that Dr Epstein has drawn regarding this general condition Dr Epstein, several years ago, called attention to the disturbance in the relation of the blood proteins apparently resulting from marked albuminuria His present work would appear to be the natural outcome of these earlier investigations

Dr Epstein referred to the association of diabetes with parenchymatous nephritis Dr Epstein's views regarding the relation of blood to edema are interesting, but the protein molecule is so large that it would not seem that the change in the protein itself could affect the osmotic pressure, although it might do this indirectly The high protein diet would appear to be logical in selected cases of parenchymatous nephritis I should like to ask Dr Epstein concerning the exact type of diet employed, and what influence, if any, this diet had on the blood urea in these cases Dr Epstein has apparently taken the cholesterol as a simple index of the changes in the blood lipoids This constitutes a very satisfactory criterion I judge from his figures, however, that he has employed the Bloor method, which gives results that are probably too high

Dr H A. Christian, Boston The chief value in the contributions of Drs Chace, McLean and Epstein lies in the facts, not theories, that have been presented In the whole question of nephritis, fancy, not fact, dominates the situation With the exception of the pathologic anatomy and histology and the observed clinical phenomena, about 90 per cent of book discussion on nephritis is fancy It is hypothesis, largely developed from the innermost soul of the writer and not from facts accurately observed and recorded That is particularly true in the discussion of the treatment Read in any of the systems of therapeutics or any of the systems of medicine the chapters on the treatment of nephritis and you end them feeling perfectly certain that the writer really had very little confidence in the methods that he advised you to use Dr McLean's idea of the relation of the excretion of urea in the urine to the urea in the blood has taught us that sometimes when there is a considerable accumulation of the nitrogenous substances in the blood, the kidney is still capable of doing good work It has also shown us that sometimes when there is no great accumulation of nitrogenous substances in the blood the renal function is at a low level and conditions are much worse than would be anticipated from a study of the blood factors alone

The real difficulty in the question of nephritis is that the important thing, the toxic element that produces the symptoms, is unknown Yet if we give controlled diets, as these essayists have done, and observe the effects on the known substances such as creatinin, uric acid, urea and so on, we are approaching nearer to a conception of what is going on with the unknown substances It is the study of the few cases accurately observed by numerical methods of observation of all sorts that is going to bring us nearer and nearer to the solution of the problem

I should like to emphasize that the cases Dr Epstein has dealt with are the unusual forms of nephritis The results which he has obtained in that group may or may not be applicable to the common type of nephritis, the chronic interstitial type As I take it, he has not so far particularly observed that group I feel very confident from the basis of my own observations that, as has been emphasized by Dr Mosenthal, it is advisable to limit not too much the protein intake in the ordinary type of nephritis On the other hand, I am perfectly aware of the fact that a too great increase in the protein intake brings on a severe headache, and I have seen uremic manifestations appear from such an intake I think that comes from increasing the protein too much, not simply from increasing the protein I have seen patients improve by having more protein than they usually had, and that makes up a larger group than the patients who are harmed by the increase Like Dr Mosenthal I have seen very little effect on the blood pressure from reduced protein intake

The diet of patients on the basis of anaphylaxis and protein immunization has been discussed a great deal but here again we have very few facts there has been surprisingly little work carried out on the protein sensitization in these cases The work that Dr Walker carried out on bronchial asthma could be carried out in these cases

There is still one other thing which we ought to bear in mind and that is that nephritis is a chronic disease it occupies in many cases years of the patient's life A week's observation and study of such a disease is only a partial investigation

Dr. L. F Bishop New York I like Dr McLean's recognition of chronic nephritis as a general disease Professor Ophüls of the University of California said that entirely too much attention is paid to the kidney meaning by that that its diseases are part of a general disease I do not agree with Dr Christian that the laboratory is the main thing I think that the physician with the patient on a diet can by observation reach valuable conclusions I do not think that a week's laboratory study of a case of nephritis is of as much value as five years observation under treatment I agree with him in that I agree with the chairman that the study of anaphylaxis is of value I do not wish to emphasize it so much at this time but I do not think we ought to go over this whole subject of nephritis while neglecting the importance of food idiosyncrasies I was much interested in the speaker who said his patient got a headache when he was given a meal with meat It shows the specific effect on a patient of some article of diet to which the patient is idiosyncratic My own practice is to cut out of the diet as many proteins as I can and give them as much of a particular protein as they desire I believe that the qualitative relation of proteins is the important one. Some patients get along with one protein very well when one has cut out the protein which is unfriendly to them The point is to study the individual Adequate feeding is a very simple matter and I always says to the patient "If your weight, the color of your blood and your endurance is satisfactory, you are getting enough to eat.' It is a simple matter to weigh patients and to determine the color of the blood and to find how much they can walk without being exhausted, that does not require a laboratory So that the only point that I wish to add is again to emphasize the importance of investigating this question of the particular relation of each protein food to the special patient, and whether I am right or not in my theory that arteriosclerosis is the result of a *long* continued series of anaphylactic reactions does not matter Clinically I know that these people are better if I succeed in eliminating from their diets the proteins which are particularly unfriendly to them as individuals

Dr. N Rosewater Cleveland Every individual requires 100 per cent. each of protein nutrition and carbohydrate What that is we must ascertain Less must result in general or local bankruptcy of lungs, heart brain kidneys etc. I have had one case seemingly of eyes—the patient reduced from 170 to 123 pounds without discoverable cause or improvement until given twelve eggs daily Her eyes at once improved and are now about normal Increasing food gradually in starvation is continuous starvation, because to give less than 100 per cent. is still minus To prove constructive the nutrition must be above 100 per cent. to restore lost essential vitality We should not fear proteins, but rather the character of protein given In the case reported a severe headache soon followed eating meat, but meat contains toxic matter not yet excreted from the kidneys Why give nephritics, with delicately balanced excretory power the slightest surplus of toxic intake avoidable? Dr Chace's diet is similarly objectionable. Why give cocoa, which contains two purin substances? Why asparagus? What good do they yield the patient? Pawlow demonstrated that, eaten without appetite, foods are digested perfectly by the various relays of digestive mechanisms, therefore, in desperate cases, why wait on appetite to secure digestion of required foods? Why not give what they need instead of what they like I prefer eggs especially raw because the raw eggs contain not only protein but every element necessary for initiating internal activating functions of every organ in all the hormone ductless and all the other gland organs constructive and protective substances fresh and uninjured by cooking requiring only body heat to bring into coordinate life Compared to milk this food is more complete concentrated bland and taxes the digestive processes less in time and motility Because buttermilk is finely curded and malted milk curds similarly I prefer these and raw eggs when the heart and stomach must be eased from overwork In selecting carbohydrates such as alcohol or sugar alcohol according to von Noorden prevents destruction of toxic material by the liver whereas sugar gives the desired readily utilizable carbohydrate without that danger In the etiology of kidney diseases from the infections diphtheria syphilis and all the rest the germs and their toxic products cause impairment but where due to damage from intake and exit of avoidable material those avoidable such as alcohol meat purin food lead etc should be avoided

Dr Arthur A Epstein New York It was found that even when the kidneys are completely destroyed as in chronic interstitial nephritis or surgical diseases of the kidneys when a minimum of kidney tissue remains no such changes as those found in chronic parenchymatous nephritis are ever encountered

The question of association of diabetes with nephritis is of particular interest because it offers a suggestion of a possible method of treating the edema which develops in parenchymatous nephritis I said in my paper that in cases of nephritis and diabetes the edema is very slight indeed provided no heart complications are present Furthermore it appears from the studies on *hyperglycemia* in experimental and clinical diabetes that the accumulation of sugar in the blood leads to a dehydration of tissues *On the basis of* these facts it appears possible to find some means of preventing accumulations of fluid in the body This subject is at present under consideration

The substances which are reputed to be responsible for the edema in nephritis namely the chlorids do not account fully for the occurrence of edema in chronic parenchymatous nephritis *for* we find them retained in the inter-variety of nephritis The French have described a condition of chlorid retention in interstitial nephritis which they call a dry retention as opposed to the retention of chlorid in chronic parenchymatous nephritis, which is associated with edema (wet retention), but there must be some factor which causes the retention of water and salts other than the fanciful state of dry and wet retention' suggested by the French investigators Starling has found that proteins in the blood serum have an osmotic pressure equivalent to 4 mg of mercury for every gram of protein We know that the exchange of fluid between the tissues and the blood takes place as two balanced forces, one is the intracapillary pressure tending to force fluid from the blood stream into the tissues, and the other is osmotic pressure of the protein and other substances, as well, tending to draw fluid from the tissues into the blood stream When an increased intracapillary pressure is present the composition of the fluid which exudes into the tissues is like that of the blood serum as evidenced by *chemical* examination of the effusions in cases of venestasis from any cause On the other hand, the fluid which accumulates in the tissues as the result of a lowered osmotic pressure due to reduced protein content in the blood serum is practically a solution of salts in water This is demonstrated by examination of the composition of the various fluids which accumulate in chronic parenchymatous nephritis The character of the diet which should be given to patients suffering from chronic parenchymatous nephritis is, first white of egg and skimmed milk this is then increased by the addition of lean meats, poultry and fish

The cholesterol figures given in this paper were obtained largely by Bloor's method and it is recognized of course that these figures are higher by about 10 per cent, but in a comparative study such as this, they are sufficiently accurate

A COMPARISON OF THE PERCUSSION AND ROENTGEN-RAY FINDINGS AFTER INJECTION OF THE PERICARDIUM *

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AND
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Resident Roentgenologist, Cincinnati General Hospital
CINCINNATI

There is no more difficult problem in physical diagnosis, at times, than the recognition of pericardial effusion This is particularly true when a patient is first seen after the effusion has occurred The frequency with which the diagnosis is missed is known to all pathologists and to clinicians who are able to follow their cases to necropsy

The physical signs of fluid in the pericardium are much less distinctive than the signs of pleural effusion There are no pathognomonic signs, and there is no constancy in the grouping of physical signs

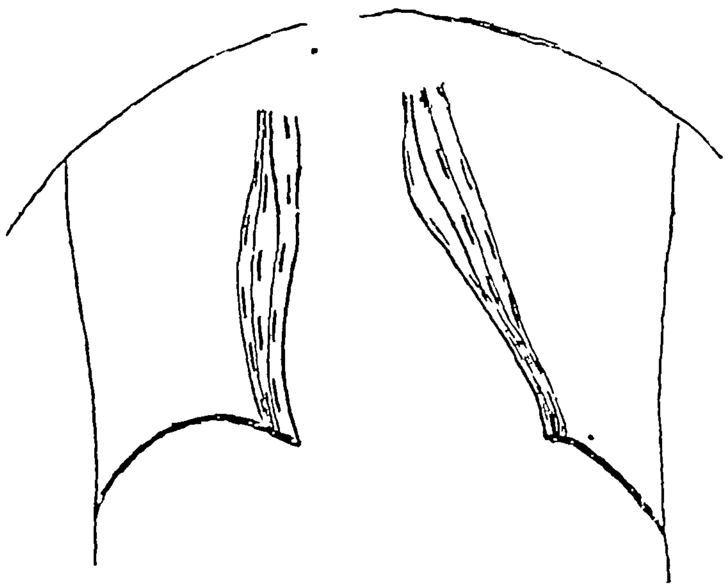
Fig 1 —Tracings made from a series of roentgenograms in Case 1 From within outward, the alternating continuous and broken lines represent the heart shadow The inner outline is the control before injection The successive lines represent the picture after injection of 250, 500, 750, 1,000, 1,250 and 1,500 c c

One of the most generally emphasized findings in pericardial effusion is a pear-shaped or pyramidal area of dulness, with the apex upward This is not, however, a constant finding, as Shattuck[1] and West[2] showed, and its absence is of no importance in a diagnostic way It is, too, a relatively late sign of effusion, one which becomes manifest only after the effusion is rather extensive and has distended the pericardial sac under considerable pressure Calvert[3] maintains that with fluid under slight pressure the dull area tends to be more quadrangular

A sign quite as generally associated with pericardial effusion is an obtuse cardiohepatic angle Rotch[4] first drew attention to this in 1878 as the result of experiments on cadavers He injected the pericardium postmortem in sixteen infants and four adults, using melted oil of theobroma (cacao butter, specific gravity 0 90) for injection The cadavers were placed in a position of orthopnea, the trunk being flexed on the thighs at an angle of about 120 degrees (The cadavers were not examined when the body was flat on the back, as West[2] says) The peritoneal cavity was then opened, and the oil of theobroma was injected through the diaphragm into the pericardium The area of cardiac *flatness* was percussed before and after injections Rotch found that flatness extending from 2 to 3 cm from the right edge of the sternum in the fifth intercostal space was encountered in adults after the injection of from 70 to 80 c c of the fluid, and considered this an important sign of pericardial effusion He did not determine the extent of relative cardiac dulness

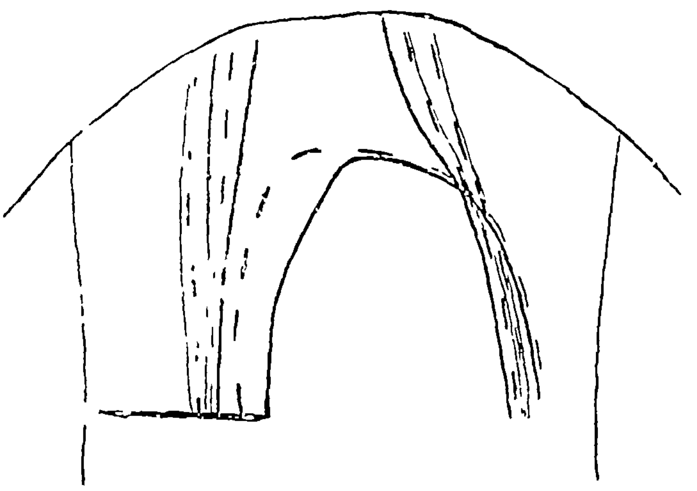
Fig 2 —The lines represent tracings from roentgenograms of the area of percussion dulness in Case 1 The inner line represents the dulness before injection The other succeeding lines are after injection of 250, 500 750, 1,000, 1,250 and 1,500 c c (Gastric tympany and infiltration of the left lung made percussion unsatisfactory in this case)

The studies of Rotch stimulated interest in the percussion findings in pericardial effusions, and numerous observers, on living material, have shown that Rotch's experimental observations on the area of flatness often hold good, furthermore, it appears that the area of relative dulness is even more reliable than the area of flatness, and attention has been directed to the obtuseness of the cardiohepatic angle, which is nor

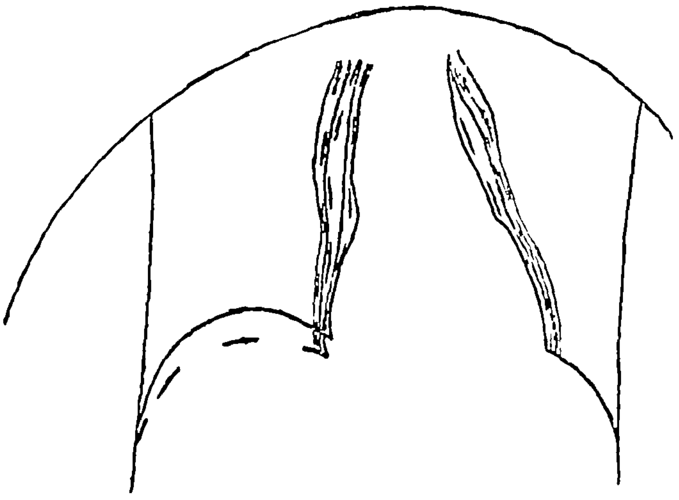
Fig 3 —Tracings made from a series of roentgenograms in Case 2 From within outward, the alternating continuous and broken lines represent the heart shadow The inner outline is the control before injection The successive lines represent the picture after injection of 250, 500, 750, 1,000, 1,250 and 1,500 c c.

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* Read before the Section on Practice of Medicine at the Sixty Eighth Annual Session of the American Medical Association, New York, June, 1917

[1] Shattuck, F C Pericarditis Some Points in its Diagnosis and Treatment, Tr Assn Am Phys, 1897, **12**, 185 204

[2] West, S Pericardial Effusion Its Diagnosis and Treatment, Lancet, London, 1910, **1**, 560 564

[3] Calvert, W J Position of the Heart in Pericarditis with Effusion, Bull Johns Hopkins Hosp, 1907, **18**, 403

[4] Rotch, T M Absence of Resonance in the Fifth Right Intercostal Space Diagnostic of Pericardial Effusion Boston Med and Surg Jour, 1878, **99**, 389, 421

mally about 90 degrees Ebstein[5] found this sign helpful in a series of forty-nine cases

An obtuse cardiohepatic angle is however not diagnostic of pericardial effusion, and as West emphasizes, it is an unreliable sign Cabot[6] refers to large pericardial effusions (proved postmortem) in which the cardiohepatic angle was acute by roentgenoscopy and by percussion Such a finding is probably not exceptional, and it was similar experiences which led to the observations about to be reported

The study was undertaken with two main objects in view (*a*) to determine the shape of the cardiohepatic angle and (*b*) to fix roughly the least amount of fluid in the pericardium which can be recognized by percussion and by roentgenoscopy with patients in the recumbent dorsal position

Cadavers from two to six hours after death still warm were used Extremely fat or edematous subjects were discarded As pericardial effusions *do not* usually cause orthopnea till the quantity of fluid is great, and sometimes not then, we assumed that it would be more useful to examine the subjects in the dorsal position It is probable that smaller amounts of fluid in the pericardium can be detected when the position of the patient is shifted, but we were interested rather in finding the earliest changes we could detect with the patient on his back This more closely approximates the conditions in clinical work, particularly in those febrile cases in which attention is not directed to the pericardium by a friction rub

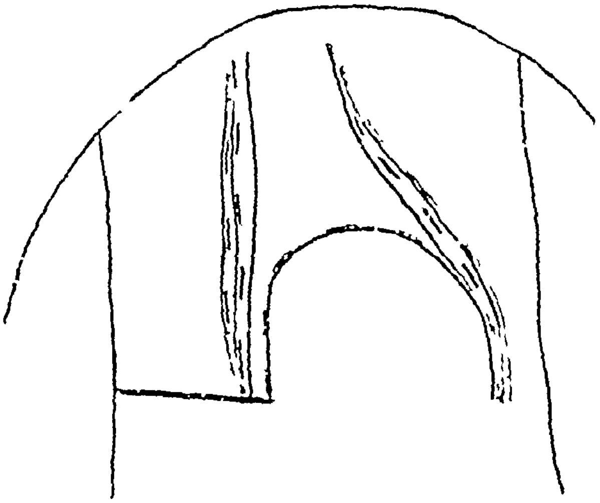

Fig 4—The lines represent tracings from roentgenograms of the area of percussion dulness in Case 2 The inner line represents the dulness before *injection* The other succeeding lines are after injection of 250 500 750 1 000 1 250 and 1 500 c c

Serous ascitic fluid was used for the injections The needle was thrust into the pericardium in the fourth left intercostal space, close to the sternum The needle was retained in situ till the *injections* were completed

The percussion findings relate solely to relative dulness Both threshold percussion and moderately strong percussion were employed, with no difference in results The area of dulness was marked out before the fluid was injected, the boundary lines were covered with strips of lead, and a teleroentgenogram was then made After each injection, the same procedures were carried out The line marking the original area of dulness was kept in place for comparison The tube was elevated so that it was about 6 feet above the anterior thoracic wall The plate was placed at the back of the cadaver The large end of the teleroentgenoscopic cone rested on the chest and its location was marked with skin pencils By means of marks on the floor the positions of the cadaver and plate holder were kept constant Four bodies were studied

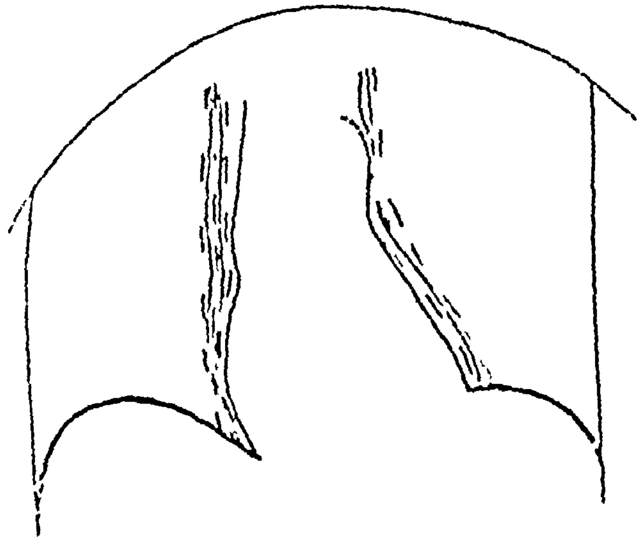

Fig 5—Tracings made from a series of roentgenograms in Case 1 (lines within outward) the alternating continuous and broken lines represent the heart shadow The inner outline is the contour before injection The successive lines represent the picture after injection of 250 500 750 1 000 and 1 500 c c

Fluid was injected in 250 c c amounts, with observations after each injection, until from 1 250 to 1,500 c c had been injected in each case

The earliest important change noted by percussion was an *increase in the dull area upward* This was constant in all four cases It occurred after injection of variable amounts of fluid In one case, after the injection of 250 c c of serous fluid, relative dulness rose from the third to the second rib, without change in the dull area to the right or left Distinct retrosternal dulness appeared after the pericardium con-

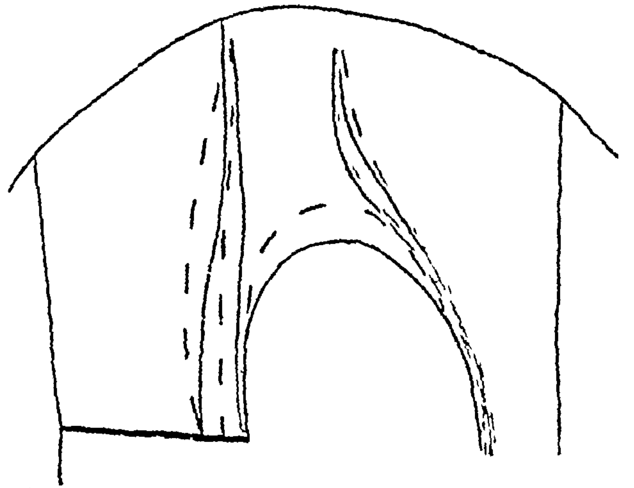

Fig 6—The *lines* represent tracings from roentgenograms of the area of percussion dulness in Case 3 The inner line represents the dulness before *injection* The other succeeding lines are after *injection* of 250 500 750 1 000 and 1 500 c c

tained 500 c c of fluid In two instances there was no demonstrable change after injection of 250 c c , but after 500 c c of fluid had been introduced there was retrosternal dulness, while in the fourth case this appeared only after the injection of 750 c c With the appearance of retrosternal dulness and its subsequent gradual increase, there was a progressive widening of the shadow in the roentgenograms (Figs 1, 2, 3, 4, 5, 6, 10 and 11)

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[5] Ebstein W Ueber *die* Diagnose beginnender Flussigkeitsansammlungen im Herzbeutel Virchows Arch f path. Anat 1892, **130**, 418-443

[6] Cabot R C Physical Diagnosis 191 Ed 6 238

[7] The study was interrupted early in the *spring* owing to the absence of one of us (E R B) in England As the examinations were largely made at night, when the Roentgen ray laboratory was available and as we insisted on having warm bodies, free from anasarca or obesity a large series was not obtained The close agreement of results we feel justifies reporting them

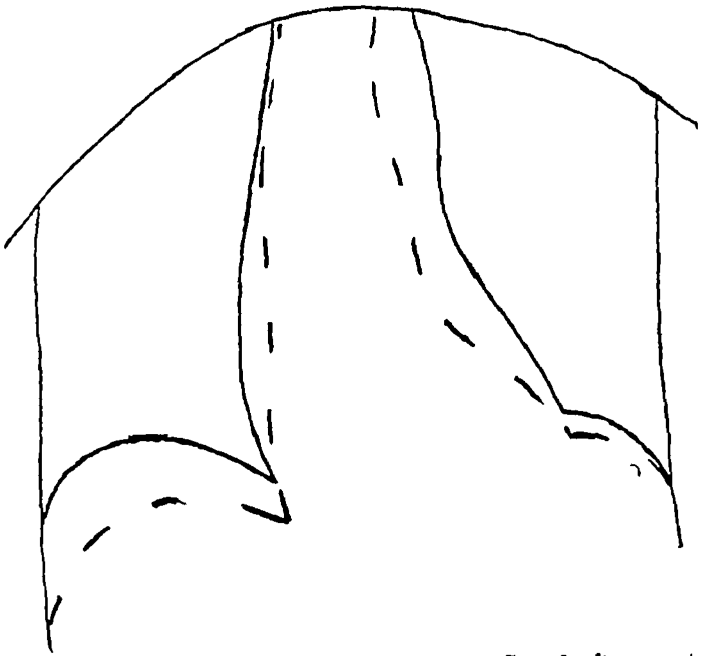

Fig 7—Tracings of the Roentgen shadows in Case 3 after injection of 1,500 c c. of serous fluid The continuous line is the outline of the shadow in the recumbent posture The broken line represents the shadow in the erect posture (See Figures 8 and 9)

The cardiohepatic angle was determined after each injection with the patient on his back In no instance were we able to demonstrate an obtuse cardiohepatic angle by percussion or by roentgenoscopy Indeed, the cardiohepatic angle became slightly acute by percussion in three of the four cases after injection of 1,000, 1,000 and 1,250 c c , respectively, and remained so till the injection was discontinued at 1,500 c c In the fourth case, the angle remained a right angle by percussion throughout In no instance was an obtuse angle found in the roentgenograms

The earliest percussion change consisted in a widening of the area of dulness to the right, in three of the four cases this was noted after the injection of 250 c c , in the fourth only after 500 c c had been introduced Nothing characteristic or even suggestive of fluid in the pericardium was seen in the form of the dull area

The fact that retrosternal dulness was the most striking change noted leads us to believe that this finding deserves more importance than has previously been attached to it Sibson[8] was one of the first to call attention to it, and demonstrated that it followed injection of fluid (water) into the pericardial sac Roberts[9] says "As the patient lies on his back, the increase of dulness is first observed toward the base of the heart It may extend as high as the second (left) costal cartilage or the first interspace or even above the clavicle " Sansom, says Roberts, maintains that whenever marked dulness extends above the third rib, there is a strong probability of pericardial effusion Aporti and Figaroli[10] have shown, by injections of agar solutions into the pericardium, that in the horizontal position the great vessels are surrounded by a small quantity of fluid which falls away in the erect posture

Though we have had opportunity as yet to test it on only one living patient, we are inclined to believe that retrosternal dulness should prove to be an especially helpful early sign, for it may be present with relatively small amounts of fluid (from 500 to 750 c c or less) Unless extensive pericardial adhesions exist to lessen its capacity, such an amount of fluid in the pericardium could be under no great tension, and the retrosternal dulness with widened roentgenographic shadows should, therefore, barring adhesions, disappear or become less with the patient sitting, owing to gravitation of the fluid to the bottom of the sac The change is capable of demonstration not only by percussion but also by roentgenoscopy (Figs 7, 8 and 9) With a tensely distended pericardium, marked shifting dulness could not be expected

Less importance should be attached to the constant *absence* of an obtuse cardiohepatic angle In all instances it happened that we were dealing with pericardia which were macroscopically normal (necropsy) Sibson showed that the normal pericardium does not stretch or bulge laterally to the extent that it does in disease, and our roentgenograms would seem to bear this out The bulging (and, hence, the pyramidal dull area) is much less evident than in most roentgenograms we have seen of patients with pericarditis with effusion Still, the injections agree with our clinical findings in some patients in proving that an obtuse cardiohepatic angle is by no means a constant finding While the cadavers were percussed only in the dorsal position, we have observed patients in whom an obtuse angle was not demonstrable in the dorsal, erect or right lateral position, by percussion or roentgenoscopy, and in whom, at necropsy, pericardial effusion without adhesions was found

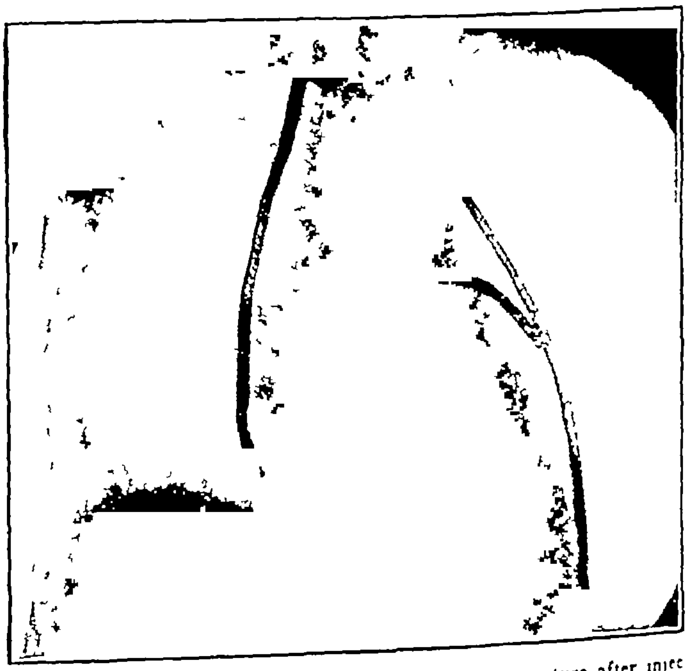

Fig 8—Roentgenogram of Case 3 in recumbent posture after injection of 1,500 c.c of fluid The dark lines represent strips of lead in the same position as in Figure 9 for comparison Note the acute cardiohepatic angle in Figures 7 and 8 and depression of right side of diagragm in Figure 8

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[8] Sibson, F Pericarditis, in Reynold A System of Medicine, Philadelphia, 1877, **4**, 186-437

[9] Roberts, F T Pericarditis, in Allbutt System of Medicine, 1900, **5**, 762

[10] Aporti, F , and Figaroli P Zur Lage der akut entstandener Ergüsse im Herzbeutel Experimentelle Untersuchungen Zentralbl f inn Med 1900, **21**, *737 749*

The quantity of fluid which may collect in the pericardium varies within wide limits Thayer[11] reported the aspiration of 1 250 c c from the pericardium and Shattuck removed about the same amount It is unusual to obtain more through the aspirating needle and yet Verney[12] found at necropsy 4 000 c c of fluid in a pericardium—the largest effusion recorded

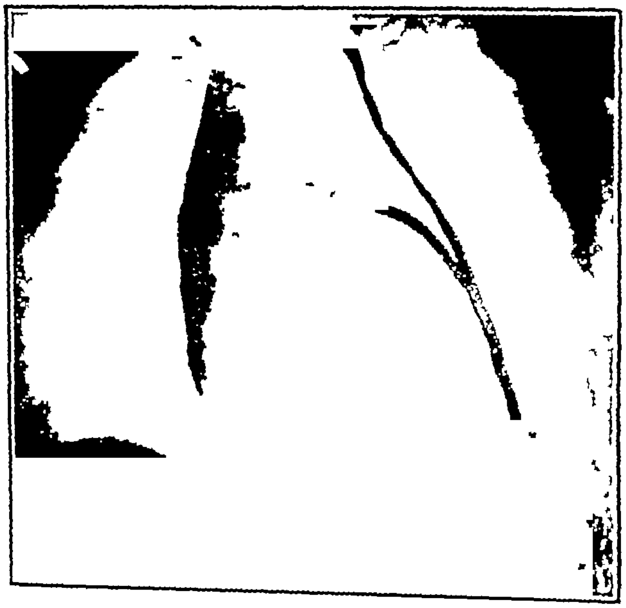

Fig 9—Roentgenogram of Case 3 in erect posture after injection of 1 500 c.c. (Compare with Figure 8)

Sibson[8] said the pericardium of an adult man with healthy heart is capable of holding from 14 to 22 ounces (420 to 660 c c), yet we had no difficulty in injecting from 1,250 to 1,500 c c Probably more could have been introduced, had we pursued the matter

There are few figures available as to the least amount of fluid which can be detected in the pericardium Cabot says not less than 150 c c can be recognized Rotch's injections indicate that half this amount may produce percussion changes In patients, however, such amounts are practically negligible Aporti and Figaroli found no change in the area of cardiac dulness until about 400 c c of fluid were injected In the recumbent posture, our findings seem to indicate that 500 c.c of fluid or less must be present to produce findings indicative of fluid

We realize that the conditions in acute pericarditis with effusion have not been reproduced The loss of tonus in the muscles, the absence of the heart beat and of respiration, and the lack of inflammation in the pericardium are serious defects Hydropericardium is more closely approximated

CONCLUSION

Our findings in fresh cadavers show that retrosternal dulness, with increasing retrosternal shadow in roentgenograms, is a relatively early phenomenon after injection of the pericardium with serous fluid, and suggest that shifting retrosternal dulness (loss or marked decrease in dulness, with decrease in the shadow in the fluoroscope or in plates) may be a relatively early sign of pericardial effusion With fluid under great pressure in the pericardium, on the other hand, marked shifting dulness will probably largely disappear

ABSTRACT OF DISCUSSION

Dr. Charles Spencer Williamson, Chicago I have been trying to attack the problem from a different point of view It seemed to me that the injection of coagulable substances, such as gelatin and agar, had certain advantages because it enabled one, after the injection (I made them always through an incision in the abdominal wall and the diaphragm) to remove the pericardium and heart intact after freezing the body Then a modeller can make a cast of the entire mass and also of the heart and the space between when filled up gives a cast of the exudate The results of this work I read at Chicago and they are in general similar to those that Dr Morris has indicated

The first thing we found was that with small exudate the fluid accumulated around the apex The exudate that accumulates in the sternodiaphragmatic angle is thickest at the apex then up behind on the diaphragmatic surface of the heart and particularly over the great vessels This corresponds to the findings of Dr Morris that the retrosternal dulness was a definite thing Many times we accidentally perforated the heart The method has another thing in its favor in that one knows the exact amount of the exudate The first point I would make is that fluid in the pericardium tends to accumulate at the apex and on the diaphragmatic surface of the heart and the first thing one notes clinically is a little dulness on the left and a pushing of the liver downward I regard that as a valuable symptom of early pericarditis together with retrosternal dulness In regard to the cardiohepatic angle, my conclusions are the same as those of Dr Morris I was never able to demonstrate anything like an obtuse cardiohepatic angle The pericardium softens up as is well known The diaphragm is pushed down and this occurs in early cases and is a valuable sign of early pericarditis

Why is the heart not covered by the exudate in front in every case The answer can be summed up in these words it is purely a question of the space between the sternum and the vertebral column as compared with the anteroposterior diameter of the heart If the heart is relatively big it impinges against the anterior part of the sternum and there is no effusion in front The place to tap the pericardium is invariably at the apex area, far enough out to be sure one is outside of the apex, inserting the needle either in the fifth or sixth interspace. One certainly takes a grave chance in going in to the right or left of the sternum It seems to me we should go in at the apex in the fifth or sixth interspace, going upwards, backwards and inwards with the needle

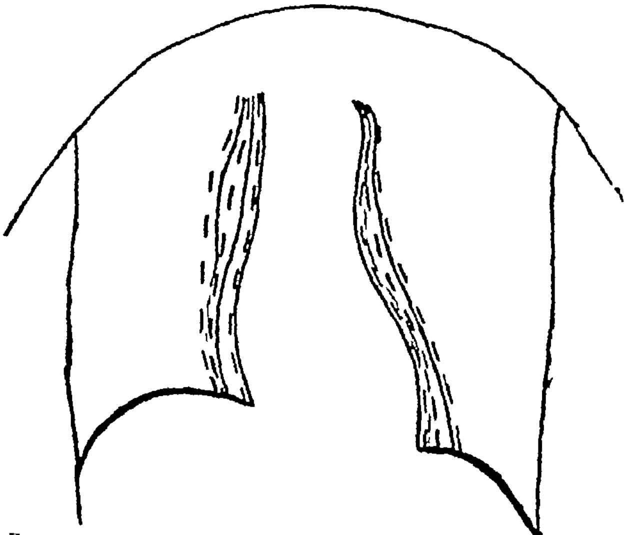

Fig 10—Tracings made from a series of roentgenograms in Case 4 From within outward, the alternating continuous and broken lines represent the heart shadow The inner outline is the control before injection The successive lines represent the picture after injection of 250 500, 750, 1,000 and 1 500 c c

Dr. Alfred Meyer, New York A patient came into my service at the Mount Sinai Hospital recently with a hemato-

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[11] Thayer W S. Observations in Two Cases of Tuberculous Pericarditis with Effusion, Bull Johns Hopkins Hosp, 1904, 15, 149

[12] Verney, cited by Thayer (Note 11)

Thus it will be seen that throughout life the breast is undergoing a constant change Its epithelium is in a condition of unrest, it has no definitely recognized equilibrium

CHRONIC CYSTIC MASTITIS

The pathology of this disease for our present purpose may be stated briefly This complex condition, which is almost without analogy in the body (if we except the prostate), consists of one series of phenomena which belong to the domain of inflammation, it consists of another series of phenomena which must be classed with hyperplasia, these again may be subdivided into forms of neoplasia, for they are evidenced by the production of tumor-like masses (fibro-epithelial) One point I wish to emphasize is that these neoplasias are not true tumors A so-called adenofibroma or a fibro-adenoma thus produced is not a true isolated encapsulated tumor It is a tumor-like mass, which is part of a disease of the whole organ In cases of this disease we find hyperplasia of the connective tissue elements, a fibrosis, in other words We find hyperplasia of the epithelium of the parenchyma This may be more or less an atypical hyperplasia, this hyperplasia up to this point taking place within the acini and ducts When migratory hyperplasia has taken place, that is to say, when the epithelial cells have penetrated the basement membrane and have infiltrated the stroma, a cancer has developed If migratory hyperplasia is the last stage of chronic cystic mastitis, then the last stage of chronic cystic mastitis is cancer

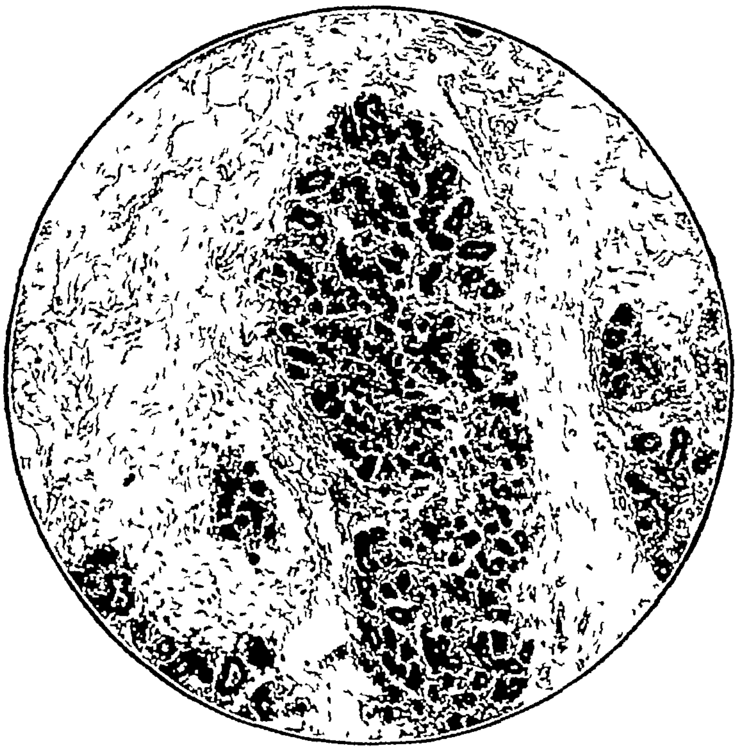

Fig 4—Normal adult breast, showing typical lobule with the normal proportion of fat cells, and with ducts of normal size There is some increase of the fibrous stroma, no more than may be found in a normal adult breast Figures 4 to 10 inclusive show sections of one breast There was one section of this breast which definitely showed cancer, unfortunately this slide has been lost These seven pictures illustrate some of the many pathologic changes which take place in chronic cystic mastitis This one breast showed the various stages of the disease ranging from normal breast tissue to fully developed cancer It aptly illustrates certain points which I attempted to bring out in this paper

CARCINOMA

For the purpose of this study we may state the pathology of cancer of the breast almost in the form of a definition We cannot do better than take Adami's

> We regard as cancer all cases in which there is infiltrative and apparently independent growth of epithelium or gland cells in the surrounding tissues, and this whether of only slightly atypical or markedly atypical cells

Our present conception of cancer is that it is a growth of more or less atypical epithelial cells, the distinctive feature being the fact that these cells are growing in the stroma outside of the basement membrane These cells to constitute cancer need not be very atypical in their morphology It is their infiltrative growth that is the factor Today we believe that a cancer cell is an otherwise normal functionating epithelial cell which for some reason or other has taken on the faculty of independent growth Practically all authorities are agreed that cancer of the breast is made up of cells from the true parenchyma of the gland MacCarty's theory that these cells are really undifferentiated cells which have displaced and replaced the differentiated cells, it seems to me has not the support of authority, and it also seems to me that it is not of material importance at the present time

Though an extensive search through the literature has not revealed what we may regard as a conclusive proof of this question, still it shows that many leading authorities recognize the close relationship between these two diseases, and some state a quite definite belief in the idea that chronic cystic mastitis is the cause of cancer in a large percentage of cases Let me state briefly the views of some prominent authorities as bearing on this subject

Billroth[2] (1880) has been credited with making a more or less pertinent statement, in effect, that cancer does not seem to develop in an otherwise normal breast

Heidenhain,[3] in 1889, and again in 1915, stated that cancer is always associated with precancerous changes

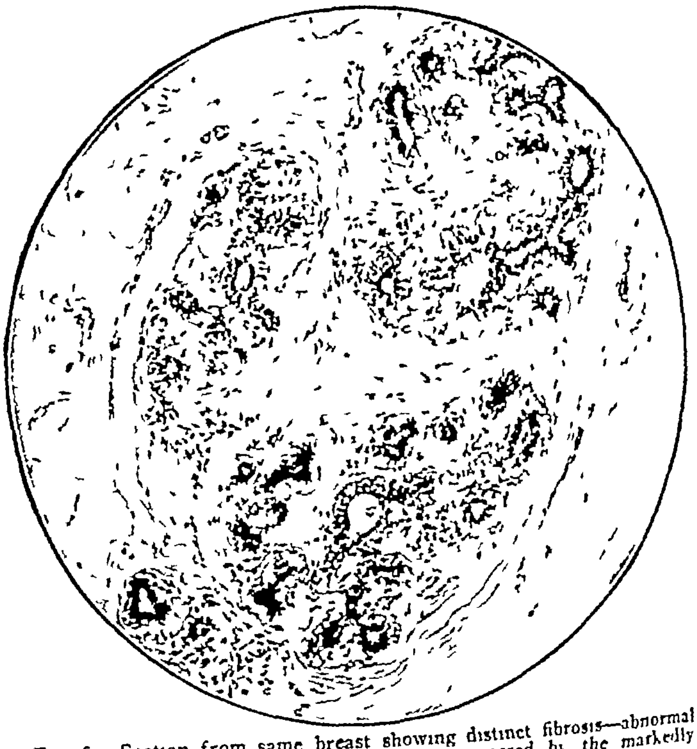

Fig 5—Section from same breast showing distinct fibrosis—abnormal involution The glandular elements are compressed by the markedly increased acellular fibrous tissue

Long ago (1889) he made a thorough study of a small number of breasts, as a result of which he stated that in cases in which even a small cancerous nodule existed, the entire breast was found to be abnormal

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[2] Billroth, R Die Krankheiten der Brustdrüsen, Deutsch. Chir Lfrg 1880, **41**, 110

[3] Heidenhain, L. Verhandl d Deutsch Gesellsch f Chir 1889, **18**, 1

He found in every portion of the breast atypical proliferation of epithelium which even at that early date he considered a precancerous condition He evidently believed that this precancerous condition was one which would probably end in cancer, for he argued that the entire breast must be removed in order to prevent the development of cancer

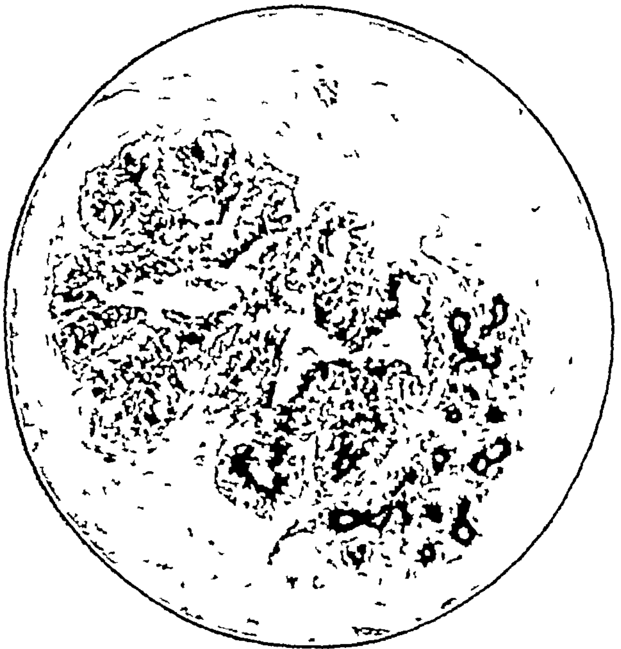

Fig 6—Section from same breast showing distinct fibrosis and a diminution of fat cells, a large duct showing atypical proliferation of the lining epithelium

Stöhr[4] states that the epithelium consists of a single layer He regards the underlying cells as basket cells, not epithelium

Verga[5] considers chronic cystic mastitis as occurring in two different types first, an inflammatory type which particularly affects the stroma, and second a type which is characterized by proliferation of the epithelium This second type is most frequently found in association with carcinoma He states there are no clinical signs to indicate the transition into cancer, and that the diagnosis of chronic cystic mastitis with carcinomatous metaplasia can only be made by means of a microscopic examination of many parts of the gland

Cornil[6] describes the breast epithelium as occurring in a single layer of cuboidal or slightly flattened epithelium, except during the latter part of pregnancy and the period of lactation, when it occurs in two layers

Krause[7] describes a single layer of cuboidal cells and another layer of basket cells on the membrana propria, that is, branching cells which anastomose with each other

Todyo[8] describes chronic cystic mastitis as occurring in three stages (not three varieties) first stage, infiltration, second stage, cystic retention, and third stage, epithelial proliferation

Kurn[9] describes the epithelium as occurring in a single layer He regards the subjacent layer of cells as basket cells He points out a difference in the glycogen content the epithelium having abundant granules of it, and the basket cells containing very little He takes Nagel's view of these basket cells, namely that they are a form of muscle cells derived from the capillaries Nagel pointed out the fact that these cells have different staining properties like muscle cells Kurn regards senile involution as a form of atrophy There is atrophy of the glandular epithelium and a collapse of the acini The ducts are left but the epithelium more or less disappears According to Kurn the epithelium may grow in more than one layer under certain circumstances, first, in newly formed glands second, in the course of certain inflammatory processes (tuberculosis), and third, in atypical proliferation He states that this may be the first stage of cancer According to Kurn under the single layer of epithelium we find another layer of basket cells The latter, he thinks, are probably muscle cells or endothelial cells coming from the capillaries They are absent during the period of development and in the period of lactation when their place is taken by vascular capillaries He assumes multicentric origin of cancer developing in fibro adenomas He describes the membrana propria as consisting of two layers (a) the homogeneous and (b) a layer of basket cells probably from the capillaries He recognized the fact that multiple layers of cells constitute atypical proliferation and that these may become the preliminary stage of cancer formation

Adami's[10] statement is clear and positive

> There are obviously individual differences in reactive and regenerative powers and these differences in other words the tendency to excessive cell growth is an all important factor in determining whether a given insult to the tissues leads merely to an orderly regeneration or to tumor growth But it is equally clear that simple irritative and regenerative hyperplasia, adenomatous growth, and carcinoma, are stages which can be manifested in succession by the same tissue, that the differences are those of degree and not of kind

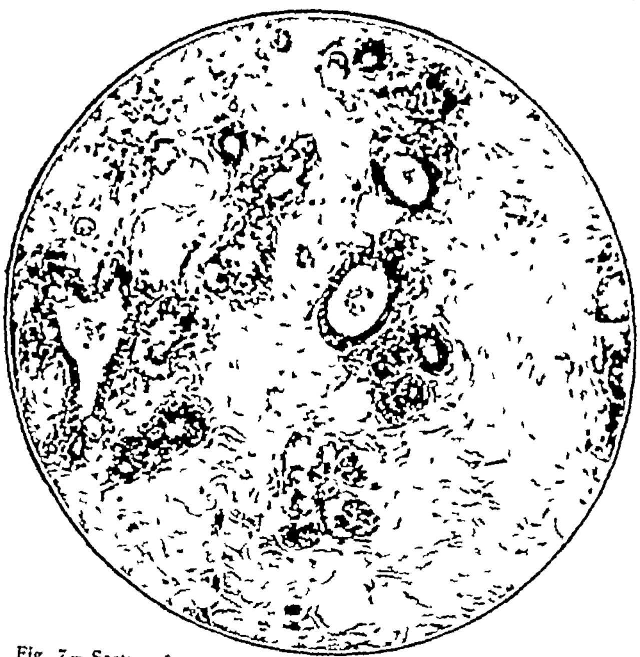

Fig 7—Section from same breast showing fibrosis, atypical proliferation of epithelium, and early stages of cyst formation

One of the most striking articles on this subject is that of MacCarty,[1] in which he analyzed the study of

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[4] Stohr P Lehrbuch der Histologie Ed 16 Jena 1915 p 405

[5] Verga G Societa Med Chir di Pavia **14**, 1907, Zentralbl f allg Path u. path Anat. 1908 **19**, 562

[6] Cornil V Les Tumeurs du sein, Paris 1908

[7] Krause Kursus der Normalen Histologie, 1911, plate 98 figs. 207 208 pp 427 428.

[8] Todyo T Arch f klin Chir, 1914, **104** 440

[9] Kurn H. Deutsch Ztschr f Chir 1909 **98**, 415

[10] Adami Principles of Pathology, p 721

1,373 cases of chronic cystic mastitis I have found no other large series of cases which have been studied in like manner, and if this paper can stimulate others to work up their breast cases along similar lines I think we shall soon be able to accummulate a very important mass of material

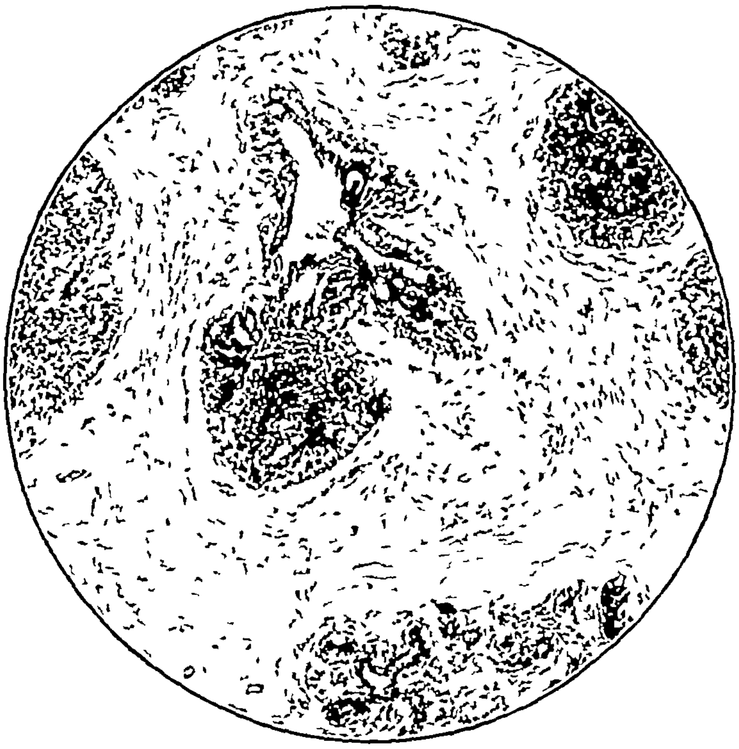

Fig 8—Section from same breast precancerous condition fibrosis, atypical proliferation of epithelium, producing definite epithelial plugs in dilated alveoli

Usually in cases of breast cancer the pathologist has studied the tumor itself, and has not studied the rest of the gland MacCarty states that in these 1,373 cases of chronic cystic mastitis there were 967 cases of cancer, and 406 cases of mastitis without cancer He states that he found no case of cancer without chronic cystic mastitis, and that two thirds of the cases of chronic cystic mastitis were associated with cancer

I might similarly quote from many other valuable contributions to this subject, but I must be content with referring the reader to the literature Let me say, however, that with few exceptions, each author who has made a definite statement on this subject has set forth his belief that there is a very close relationship between chronic cystic mastitis and cancer of the breast

Let us consider for a moment a few of the facts which we today recognize concerning cancer First, it is conceded that there is no such thing as a specific cancer cell Our present day conception is that cancers develop from normal preexisting cells which for some reason or other have taken on abnormal activity as to growth and as to function Secondly, we believe that cancer is at first an absolutely local process Thirdly, we believe that certain diseases and certain conditions act as precursors of cancer and may be considered as potential causes of cancer

Prolonged irritation is recognized as one of the most frequent contributing causes of cancer As instances we may mention the obsolete chimney sweep cancer, the clay pipe cancer, the Roentgen-ray cancer, the kankri cancer of the Thibetans, caused by the irritation due to heat, and mouth cancers in India caused by chewing betel nuts There is no longer any doubt in the minds of our profession on this point The question to be cleared up, however, is just why, and just how, prolonged irritation results in cancer If we go back to our former proposition that a cancer originates in a normal body cell and that cancer is evidenced by a change in both the structure and the function of a cell, we may readily speculate as to whether these changes thus produced are not a response on the part of nature to the stimulus engendered by irritation, and whether they do not after all represent nature's attempt along the line of defense just as we see analogous processes represented by the phenomena of inflammation This would perfectly agree with Adami's statement quoted above

We have abundant evidence to prove the association of cancer with chronic cystic mastitis Finney,[11] quoting others, placed the proportion of cancer as from 10 to 50 per cent Greenough and Hartwell[1] place it at 10 per cent, Warren[13] at 13 per cent, Verga[5] found five cases of cystic mastitis with cancer among twenty-eight cases of tumors in the breast, Lockwood[14] in forty cases found eight cases of cancer, and three which he marked as suspicious, making more than 20 per cent Taylor[15] found it in 50 per cent of his cases, MacCarty[1] found it in about 70 per cent

In this connection, if we study the etiology of chronic cystic mastitis we will find that it is due to some form of irritation Let me quote from an article of my own [16]

> Being an inflammation, we must assume that the phenomena are really a series of responses to some form of irritation, either mechanical, bacterial or chemical

I have long felt that chronic cystic mastitis is a complex process, that the various changes in structure represent definite stages of the disease, that abnormal

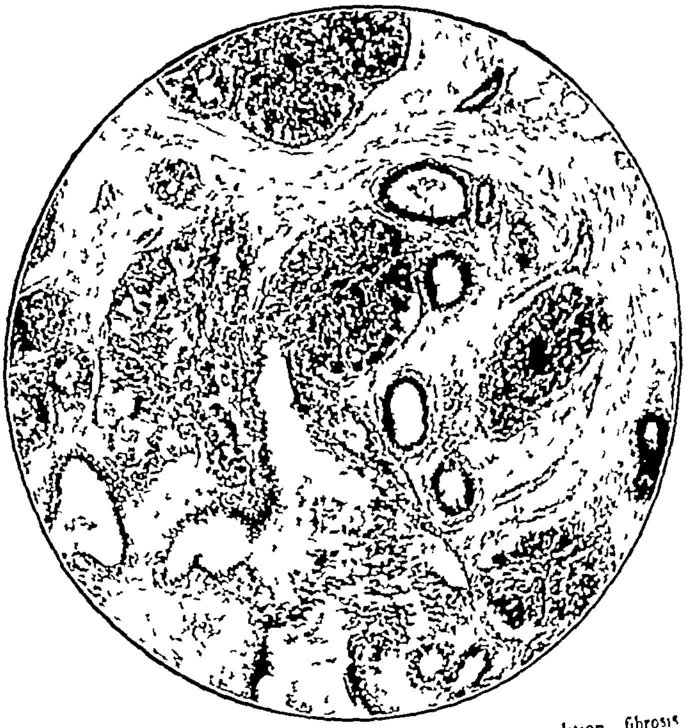

Fig 9—Section from same breast precancerous condition fibrosis atypical proliferation of epithelium epithelial plugs in dilated ducts and alveoli with papillary overgrowth of epithelium in ducts

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11 Finney, J M T, in Keen Surgery, 1910, 3, 568
12 Greenough and Hartwell Jour Med Research, 1903 9
13 Warren, J C Surgical Observations on Tumors Boston, 1837, p 279
14 Lockwood Cancer of the Breast, 1913
15 Taylor, W J Tr Phila Acad of Surg, 1911, 13, 90 Ar-
Surg, 52, 250
16 Syms, Parker Chronic Cystic Mastitis or Abnormal Involution of the Breast, Ann Surg, 1916, 64, 696

hyperplasia and hypertrophy of the epithelial cells resulting in penetration of the basement membrane and infiltration of the stroma is the last stage and this is cancer If this is true we may restate it by saying that chronic cystic mastitis is a progressive disease which will proceed to the production of cancer unless its progress is arrested before it proceeds to its logical conclusion A demonstration of this will take us a long way toward the elucidation of the evolution of cancer of the breast

If sufficient investigation will prove as MacCarty[1] has found that cancer of the breast does not occur without chronic cystic mastitis shall we not have strong support for the hypothesis that cancer of the breast is caused by some form of irritation which first results in chronic cystic mastitis and which finally results in cancer by a form of transition from one stage to another until the final stage of infiltrative cellular hyperplasia which is cancer?

With this in view I strongly urge practitioners to examine not only the tumor but also the whole breast in the future, and to publish their findings, so that we can throw much needed light on this important question

If we can prove that cancer develops by a process of evolution, and if we can learn just what are the precancerous stages, we can certainly apply that knowledge for the prevention of cancer Curing or removing precancerous conditions will, of course, prevent the development of cancer

361 Park Avenue

ABSTRACT OF DISCUSSION

Dr. Daniel N Eisendrath Chicago The relation of chronic cystic mastitis to cancer of the breast is the most important one in this field of surgery at present

Some of the statements made by Dr Syms I am afraid assume conclusions before the proof has been accepted by both sides, and are apt to lead to the belief that every case of chronic cystic mastitis is a potentially malignant one and should be subjected to a radical procedure I refer especially to his statements that because both this disease and cancer show disturbed equilibrium and are associated at times, there is a close connection between the two diseases Again he assumes that migratory hyperplasia is the last stage of chronic mastitis hence this last stage is cancer Now such statements are misleading and many breasts will be amputated uselessly unless these deductions are made less general He quoted authors who report finding chronic cystic mastitis associated with cancer in from 10 to 70 per cent of their cases, but no one has ever seen such a direct transmutation of one into the other In many cases the proliferation of epithelium may be very advanced without any invasion of the connective tissue I am willing to grant and my experience amply confirms the necessity of impressing on every general practitioner, as well as surgeon, the fact that every case of chronic cystic mastitis must be most constantly watched for the possible development of signs of malignancy This means that we must adopt a certain standard of procedure toward the cases, which present themselves more frequently in single than in married women as localized or diffuse areas of induration or cysts usually painful especially during menstruation without enlarged axillary glands as a rule and often with such hard lumps that we feel certain we are dealing with a carcinoma only to find at operation a tense cyst In this class of cases I would also include those with bloody serous or milky discharge from the nipple no matter at what age they present themselves because these are due to papillomatous formation within the cysts whether we call it chronic cystic mastitis or abnormal involution Its protean clinical character demands treatment according to its salient pathologic features as follows 1 In very young unmarried women one can safely wait until after marriage and then caution them to be examined from time to time 2 Every breast with many cysts and considerable induration in women above the age of 35 should be examined by a transcutaneous incision in its upper half and a plastic operation in its lower half If the surgeon believes from the area seen that it is cancer (every operator must have sufficient training in pathology to tell this from the naked eye appearances) he should make radical removal of the breast adding to it a supraclavicular dissection if the area was in the upper half If frozen section shows epithelial hyperplasia but nothing definitely carcinomatous it is best to perform a conservative amputation

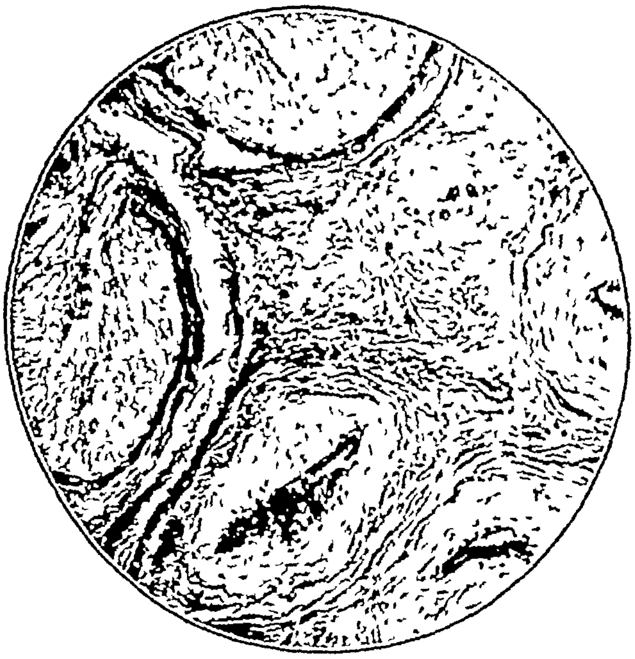

Fig. 10—Section from same breast typical intracanalicular adenofibroma

Dr Parker Syms New York It is one of the most difficult questions for a surgeon to decide just what he should do with these cases Each one should be treated individually Personally I believe I have been very conservative in my operations in this class of cases I have removed very few breasts for this condition where I have not had a suspicion of cancer and in some of these I have found that there was taking place a transition into cancer We know there are no symptoms which definitely indicate such a transition Dr Eisendrath must have misunderstood me though I thought my expression was clear enough I did not say that the last stage of chronic cystic mastitis must be cancer I said it may be I said chronic cystic mastitis is a complex process, evidenced by signs of inflammation, of hyperplasia of the different elements by cyst formation, etc, and that I believed that its last stage was carcinoma, if so, that it would reach that point provided it proceeded to its logical conclusion just as there is only a proportion of human beings who go on to 80 years of age I feel that a most important thing is to make a distinction between the hard, tumorous masses we find in this disease, and true tumors These so-called tumors are not tumors at all, though they may have a typical appearance under the microscope They are part of a disease, and they are a peculiar form of neoplasia You cannot remove them without cutting through breast tissue The frozen section is unreliable. I believe that Dr Ewing who is one of our highest authorities on carcinoma, refuses to employ frozen sections in these cases Sometimes it is only after twenty, thirty or forty sections that one will run across one that shows cancer Among the illustrations there are seven taken from one breast They range from the normal through various stages of abnormality There was one section that showed cancer and it was not found until this breast had been examined by several pathologists In closing I wish to urge surgeons to examine breasts in tot[illegible]acCar has and as Heidenhain did in 1889

INTUBATION OF THE LARYNX

AN ANALYSIS OF THREE HUNDRED AND FIFTY CASES IN PRIVATE PRACTICE *

HENRY JAMES CARTIN, M D
Pediatrician, Conemaugh Valley Memorial Hospital and Mercy Hospital
JOHNSTOWN, PA

Laryngeal diphtheria, requiring intubation, has been considered by most pediatricians as a disease for hospital treatment It is because of this belief that I decided to present an analysis of 350 cases occurring in my private practice in the hope that results obtained under the most adverse conditions may lead to more general use of this operation when hospital facilities are lacking

Johnstown, Pa , is the center of vast steel and mining industries which attract a large population of laboring people of both native and foreign birth The homes of many of these are overcrowded and living conditions are unhygienic, resulting in many of the children having chronic catarrhal conditions of the upper respiratory tract There is concealment of disease through fear of quarantine, and exposure to disease through ignorance of contagion and indifference to it These conditions made a fertile field for epidemics of laryngeal diphtheria in our community during the years 1905-1917 The increase in the number of cases intubated is due primarily to the epidemics and secondarily to increasing knowledge among my fellow physicians of the success of the operation so that each child was given the chance of intubation if needed

TABLE 1—NUMBER OF PATIENTS PERSONALLY INTUBATED IN DIFFERENT YEARS

Year	Cases	Year	Cases
1905	1	1912	106
1906	0	1913	48
1907	4	1914	66
1908	6	1915	21
1909	13	1916	13
1910	28	1917	11
1911	33		
		Total	350

I am indebted to sixty-five of my colleagues for 295 of this series, one of them having thirty-eight cases All of the cases in the series developed within a radius of 15 miles One hundred and fifty-two patients were of foreign parentage, 198 of native parentage There were 182 males and 168 females The conditions for operation were far from satisfactory In six cases I was called when the child was moribund, having had no previous medical attention, in many others the operation was delayed until the child's condition became desperate With a child urgently in need of operation, time had to be taken to gain the consent of the parents, in foreign families through the aid of interpreters For operating we used the kitchen table, bed or two chairs, in one case the floor The light was always poor A parent, neighbor or physician was pressed into service to hold the patient The physician, through interest in the operation, frequently failed to hold the child properly The other helpers failed through nervousness

After operation I had little control of the patients in families in which I was called by another physician In many cases the physician made the daily visit, reporting to me by telephone each day Sometimes we arranged to visit the patient together daily At other times the case was referred entirely to me until discharged The patients had no nursing care, bathing, or special diet, except in eighteen instances in which the nurse had had no previous experience in this work Many of the patients were not kept in bed but played as usual with the children of their own and neighboring families in spite of quarantine I have nothing new to offer as to technic I use O'Dwyer's instruments with hard rubber tubes, having found nothing that is an improvement over them I have never had occasion to use specially constructed tubes I intubate with the child in the dorsal position Since several unpleasant experiences I always remove the string, if it is not removed the child must be restrained The string irritates the pharynx, causing persistent coughing There is also danger of the child biting it off Since this routine was adopted, only one patient has been lost by the tube blocking and death resulting before aid could be secured I always use the tube indicated for a child from 6 to 12 months older than the patient, because it is less liable to be coughed up from the first to the third day After this time the accident is not feared

TABLE 2—AMOUNTS OF ANTITOXIN GIVEN

Units	Patients	Units	Patients
0	6	16,000	7
2,000	1	17,000	7
3,000	3	18,000	3
4,000	1	19,000	2
5,000	22	20,000	42
6,000	10	22,000	1
7,000	12	23,000	1
8,000	18	24,000	1
9,000	10	25,000	11
10,000	73	30,000	3
11,000	11	32,000	1
12,000	13	35,000	1
13,000	2	50,000	1
14,000	1		
15,000	86	Total	350

Fifty-seven per cent of the patients received from 10,000 to 20,000 units Early in the series, difficulty was experienced in obtaining a sufficient amount of antitoxin because of its high cost, and also because the prejudice and ignorance of the parents often prevented its use in sufficient quantities This was before the day of free antitoxin furnished by the state It was my practice at that time to administer from 2,000 to 10,000 units and repeat it in from six to twelve hours if necessary This method required repeated injections, kept the patient in constant fear and pain, and caused the parents to interpose strong objections During the past few years, with free antitoxin and less prejudice against the remedy, I estimate by the severity of the case the probable total needs, and inject this quantity in one dose, anywhere from 15,000 to 50,000 units

TABLE 3—NUMBER OF PATIENTS RECEIVING ANTITOXIN

Age, Years	Neither Before Nor After	Before Only	After Only	Before and After
1	1	1	2	7
1½	1	5	6	29
2	1	3	6	23
2½	0	10	7	19
3	0	5	9	32
3½	0	0	1	2
4	0	5	5	25
4½	0	0	0	1
5	3	7	16	37
5½	0	0	1	0
6	0	4	5	13
7	0	3	6	14
8	0	4	2	11
9	0	3	0	11
10	0	1	0	0
14	0	1	0	1
34	0	0	0	1
Totals	6	52	66	226

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* Read before the Section on Diseases of Children at the Sixty Eighth Annual Session of the American Medical Association, New York, June, 1917

The first and greatest advantage of this method is that it furnishes the patient with antitoxin when he most needs it The antitoxin is given intramuscularly the gluteal muscles being the location of choice Sixty-five per cent had antitoxin before and after intubation Six patients had no antitoxin and all died within two hours after intubation being in fact moribund when the physician arrived Fifty-four per cent of the patients were ill from one and one-half to two days before intubation The tube was worn five days by 223 patients It was noted that those wearing the tube for this length of time were less likely to require reintubation than those extubated earlier

After removing the tube I always remained with the patient until all danger of returning stenosis was past The usual time was two hours Rarely did a case require reintubation after this time However, I was always ready to return if the child's condition grew worse The diet prescribed depended largely on the condition of the patient and the character of the home Liquids and soft solids were allowed as soon as the patient was able to swallow It was impossible to control the patients in most cases In spite of orders, some patients ate at the table within twelve hours after intubation

I have never had occasion to use the Casselberry method of feeding or to resort to gavage For stimulation I relied mainly on caffein sodium benzoate In septic cases mercuric chlorid was used together with whisky or brandy

TABLE 4—DAY OF ILLNESS

Days	Cases	Days	Cases
½	1	5	9
1	57	6	2
1½	64	8	2
2	124	10	2
2½	23	12	1
3	52		
4	13	Total	350

In this short paper it is impossible to do more than point out the prominent features of this series The tables will show all the essential facts The complete history of each case is available, but I can use it only to verify and amplify statements made in this sketch Some of the striking incidents and results noted are

In 350 cases there were no chronic tube cases There was no case requiring tracheotomy A curious opinion prevailed among the people The results of tracheotomy were confused with those of intubation, and the latter procedure was believed to be followed by the same distress and fatality as the former Much explanation and pleading was required to convince some parents of this mistake Two patients coughed up the tube and cast Both recovered One family had three cases requiring intubation Ten families had two cases each The youngest patient intubated was 7 months old The eldest was a woman aged 34 years Only one patient was intubated twice The interval between the two attacks of the disease was two years Many patients complained of earache In three cases the tube blocked and casts were coughed up immediately after extubation

Many cases of laryngeal diphtheria were secondary to pharyngeal cases in other members of the family The reverse occurred only a few times In 350 patients only thirty-two required reintubation Twenty-eight required 1 reintubation, one, 2, one, 3, one, 4, and one, 5 In the latter case phonation was imperfect for a time, but became clear after seven months Permanent disturbance of phonation did not occur in a single case

Kidney complications did not occur or were overlooked The latter is quite possible, as both my own and the attending physician's connection with the case terminated with extubation With the return of the child to apparent health, the parents did not believe medical services were necessary and for them the case was at an end

Marked anemia was observed in only a few cases when after from five to seven days stenosis developed following pharyngeal diphtheria Of 350 patients forty eight died a mortality of 14 per cent If we deduct thirteen dying within six hours after intubation we have a total left of 337 cases with thirty five deaths a mortality rate of 10 per cent One child died of postdiphtheric cardiac paralysis seven days after extubation One patient was in excellent condition when extubated, but instantly developed spasm of the glottis and died within one minute, before the tube could be replaced In one case the tube became blocked with membrane and death resulted before aid arrived

TABLE 5—DAYS TUBE WAS WORN

Days	Cases	Days	Cases
¼	4	5	[illegible]
½	[illegible]	6	6
1	3	7	1
1½	[illegible]	[illegible]	[illegible]
2	[illegible]	10	15
2½	[illegible]	11	[illegible]
3	[illegible]	15	1
3½	[illegible]	21	[illegible]
4	47	[illegible]	5
4½	3	Total	[illegible]

A child 1 year old had frequent convulsions before its attack of diphtheria It was intubated and did well for five days One hour before the tube was to be removed it had a convulsion and died within twelve hours The tube was clear at all times One child while playing in the yard on the fourth day coughed up the tube and was dead before the mother was aware of the accident

In the cases of death from heart failure some were due to septic diphtheria in which stenosis was the late secondary complication Some had a severe type of scarlet fever with septic throat and late stenosis One patient had pertussis when laryngeal diphtheria developed Threatening stenosis was relieved by intubation At each extubation extreme paroxysms of coughing and stenosis required immediate reintubation The operation was repeated three times but exhaustion finally caused death The most frequent cause of death was diphtheritic pneumonia Twenty-seven patients developed this condition and none survived, accounting for 56 per cent of the deaths

TABLE 6—CAUSES OF DEATH

Heart failure	8
Sepsis	5
Diphtheritic pneumonia	27
Scarlet fever	2
Pertussis	1
Pulling out tube	1
Spasm of glottis	1
Tube blocked	1
Convulsions	1
Coughed up tube	1
Total	48

At the beginning of this series, my practice was to operate when symptoms threatened life Following this plan lives were lost that might have been saved because the attending physician or parent could not interpret the danger signals As a result I now operate when the diagnosis is clear and positive, as indicated often involved than the left, and the lower extremity more frequently than the upper Seldom is there a family history of any congenital deformity

REPORT OF CASE

History—Man, aged 56, tailor, married, no children, was admitted to the medical division of the German Hospital, complaining of a throbbing sensation in the abdomen There was also a feeling of discomfort in the back of the neck and lower extremities These symptoms had been present for the past eight years, becoming more pronounced during the past six weeks, so that he was forced to give up his occupation The disturbances referred to would invariably occur while the patient was at rest Strange to say the enormously hypertrophied leg gave him no discomfort whatever The leg had slowly increased in size from birth to adolescence. There were never any pains or other sensory disturbances In fact, the hypertrophied leg had been of greater service to him than the sound limb The patient was operated on for a glandular tumor of the neck at the age of 18, and had never been sick since The history was entirely negative

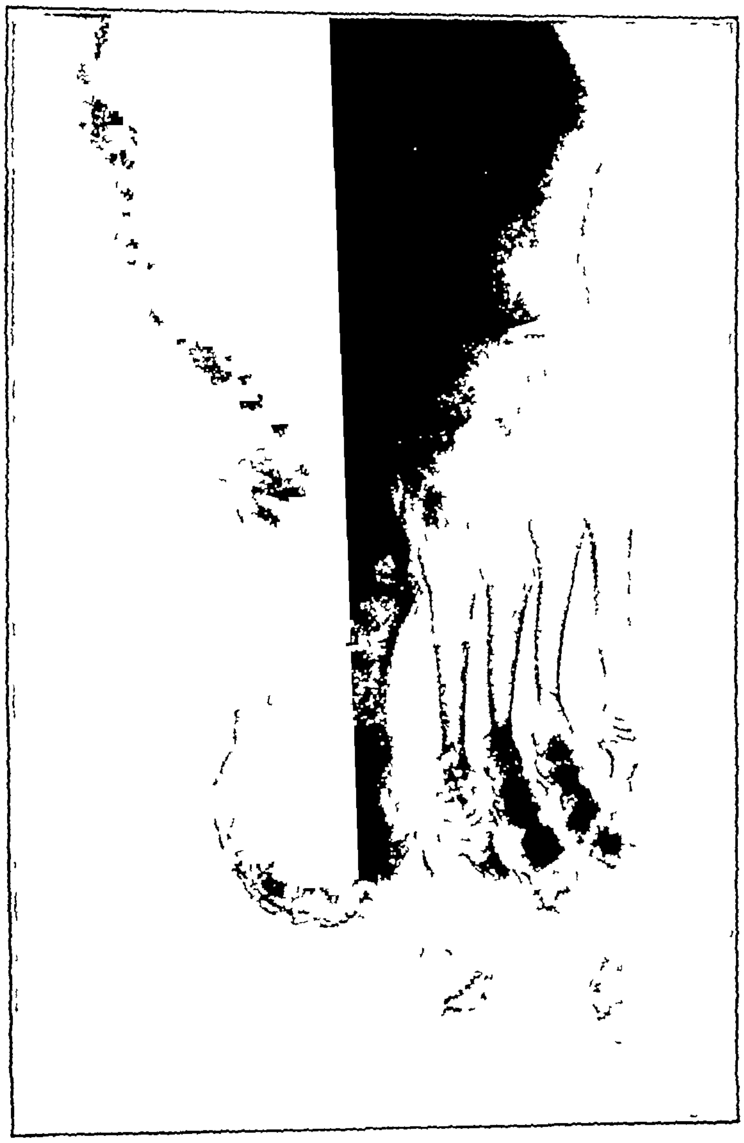

Fig 2 —Roentgenogram of right foot

Physical Examination—The patient was exceedingly well developed and nourished, and showed no organic disturbances There were no glandular enlargements or palpable thyroid The right side of the chest was slightly less developed than the left, the development of the arms was equal, but the right leg from the middle of the thigh down was enormously hypertrophied The measurements of the right leg as compared to the left were

	Right Leg, Inches	Left Leg, Inches
Three inches above the patella	18	17¼
At the patella	19¾	15¾
Three inches below the patella	18½	14¼
About the ankle	14	8⅛

No tenderness was elicited over the affected leg A large lipoma was present at the ankle

Roentgen Examination—Marked changes were present in the shadows of the outlines of the bones around the knee, ankle, tarsal articulation and tarsal phalanges The process was characterized by extensive production and deformity The head of the first metatarsal and phalanges of the first toe, as well as the soft parts, showed great production and deformity almost to the extent of gigantism The left leg was normal in all respects Examination of the chest and head showed no enlargement of thyroid, thymus or pituitary

Clinical and Laboratory Findings—The systolic blood pressure was 180, diastolic, 96 The pulse rate was 72 per minute The blood count was normal in all respects The Wassermann reaction in the blood and spinal fluid was negative. Analysis of the urine revealed total nitrogen, 10 gm. in a twenty-four hour specimen, ammonia nitrogen, 6 per cent, urea nitrogen, 66 per cent No sugar, albumin or casts were found Bence-Jones protein was absent.

Chemical examination of the nitrogenous constituents of the blood revealed, per hundred c c of blood nonprotein nitrogen, 21 mg , urea nitrogen, 10 mg , uric acid, 1 mg , creatinin, 1 mg Sugar as dextrose was 0 1 per cent. The carbon dioxid combining power was 85 volumes per cent per hundred c.c of serum The phenolsulphonephthalein elimination in two hours was 75 per cent

Gastric analysis showed no retention, free and total acids being present in the usual percentages

There were no thyroid or thymus disturbances Injection of one-tenth grain of pilocarpin produced no perspiration, salivation, increased general nervousness or perceptible changes in blood pressure. The instillation of 1 drop of a 1 1,000 epinephrin solution into the eye caused no changes in the pupil The pulse rate was not affected when the eye ball was pressed The sugar tolerance test was done as follows The patient was given 150 gm of glucose in coffee by mouth twelve hours after the last meal, the urine was tested for sugar in the specimen the following hour, and for the next five hours and in the complete twenty-four hour specimen The amount was increased 50 gm daily until 650 gm had been given at one time No sugar could be detected in the urine Following the last test, the sugar content of the blood was 0 088 per cent For obvious reasons the amount of glucose could not be increased

COMMENT

Several theories have been advanced concerning the etiology of hemihypertrophy Among the older hypotheses may be mentioned paralysis of the vasomotor system, arrested development of the different coats of the arteries, intra-uterine meningitis of the brain and cord, faulty development of the cord, enlargement of one side of the cerebrum, and lesions in the central nervous system More recent views ascribe the condition to some alteration in the character of the internal secretions—possibly a hyperpituitarism Numerous postmortem findings fail to establish a definite cause

152 East Eighty-First Street

Care of Expectant Mothers—The New York Milk Committee has recently published a report on the care of expectant mothers covering its work for the past four years, 3,145 expectant mothers were enrolled and given care and supervision averaging three and one-half months before and one month after confinement, 3,192 babies were born, of which 115 were still birth, and eighty-six others died during the first months after birth The stillbirth rate per thousand of these cases was thirty-six against forty-six for Manhattan or a reduction of 22 per cent The rate per thousand of deaths under one month was twenty-eight against thirty-nine for the borough, or a reduction of 28 per cent Out of this whole group of mothers only five died, giving a rate of 1 5 per thousand mothers against a rate of 4 9 in the city at large

THE SURGICAL SIGNIFICANCE OF GASTRIC HEMORRHAGE *

DONALD C. BALFOUR, M.D.
ROCHESTER, MINN.

From a surgical standpoint, hematemesis is caused by or occurs with, first, primary lesions in the stomach and duodenum, such as ulcer, cancer, tuberculosis, syphilis and benign tumors, and second, certain diseases and infections which are not necessarily associated with recognizable changes in the gastric mucosa.

In the first group, namely, those cases in which there is a chronic gastric or duodenal lesion, both diagnosis and treatment are on a relatively satisfactory basis, and the general surgical principles applicable in the treatment of the most common cause of hematemesis in the group, that is, gastric or duodenal ulcer, are more or less accepted. These bleeding ulcers may be conveniently divided into two groups, namely, those ulcers in which there has been a history of bleeding, and those in which active bleeding is taking place.

1. The indications for surgical treatment of the patient with a history of single or recurring gastric hemorrhages in whom a diagnosis of ulcer can be established are positive. It has been our experience that to depend on gastro-enterostomy alone for the treatment of ulcer which has been associated with bleeding is to court recurrence of the hemorrhage, and that to obviate further hemorrhages, excision, preferably by cautery, or resection of the ulcer, is imperative.

2. The management of the ulcer which is the cause of continuous, active bleeding has been the subject of considerable controversy. There are no means of estimating the size of the bleeding vessel. As a single gastric ulcer hemorrhage is rarely fatal, the margin of safety usually permits delay until lowered blood pressure has allowed clotting to take place. Death due to hemorrhage from gastric ulcer has usually been the result of repeated hemorrhages at comparatively short intervals. A recurrence of bleeding, therefore, a few days after a serious hemorrhage is more than a sufficient indication for operating during the active hemorrhage, rather than to risk further delay. In repeated or continuous small hemorrhages, which do not threaten the life of the patient, transfusion has proved of the greatest value, not only in controlling the bleeding by the introduction of the necessary elements for clotting, but also adding greatly to the safety of later operative measures for the ulcer.

In the second group of cases of hematemesis, namely, the cases in which there is no surgical lesion in the stomach, a variety of diseases and conditions call for consideration, and they may advantageously be divided into groups as follows:

1. Cases in which there are recognizable changes in the liver or spleen or both, a group in which hepatic cirrhosis and splenic anemia are representative.
2. Cases in which a chronic infective focus, such as a diseased appendix or gallbladder, is apparently responsible for the bleeding.
3. A group which includes, in the main, such acute infections as typhoid, pneumonia, etc., multiple hemorrhagic erosions, cases in which no changes can be demonstrated either at necropsy or operation, and the cases of "gastrostaxis" of Hale White.

The differential diagnosis of these various groups is not made without difficulty, and the ordinary difficulties are exaggerated by the fact that many conditions such as hepatic cirrhosis, appendicitis, or gallbladder disease are associated with disturbances in gastric digestion, which may easily be misinterpreted as due to ulcer. Hematemesis added to such a syndrome has not infrequently resulted in unnecessary and unsuccessful operations based on an erroneous diagnosis of gastric ulcer.

Hepatic cirrhosis and splenic anemia are relatively often the cause of hematemesis in this extrinsic group, and if one bears in mind the ease with which mucosal hemorrhages take place in these diseases, and the fact that such hemorrhages have the same characteristics as those associated with the other more or less obscure causes in the group, it seems to be suggested that the liver or spleen or both offer a key to the explanation as to the manner in which many, if not all, these mysterious hemorrhages take place.

The close association of the spleen and the liver, both in the normal physiologic and anatomic relationship and in disease processes, necessitates the most careful consideration of the spleen in all conditions which involve the portal circulation. It must be remembered too that the spleen, or liver, or both may be responsible for gastric hemorrhage, and yet themselves not exhibit any evidences of disease. I recently published the history of a case in which I removed a slightly enlarged spleen, chiefly on an empirical basis, from a patient who had had various operations, mainly gastric, in an effort to find the cause of, and to prevent gastro-intestinal bleeding. This patient has had no bleeding since the splenectomy. Various writers, particularly Rolleston,[1] have attributed gastric hemorrhage in such cases to a "latent" hepatic cirrhosis.

The treatment by splenectomy of moderately advanced hepatic cirrhosis is as yet in the experimental stage. The disease is usually so slowly progressive that even though the immediate results have been satisfactory we do not feel justified in drawing conclusions from the cases in which we have performed splenectomy. Nevertheless, there appears to be a definite group of so-called primary hepatic cirrhoses produced by toxins originating in, or elaborated in, the spleen. So in those cases in which hematemesis occurs in what might be termed the precirrhotic stage of hepatic cirrhosis, that is, when the cirrhotic changes are scarcely visible either grossly or microscopically, splenectomy may be indicated, if the spleen is large. Under such circumstances the operation may be looked on as probably a curative measure.

It is a significant fact that in those cases of gastric hemorrhage which show only slight erosions in the mucosa of the stomach, micro-organisms may be obtained from the depths of the erosions and the same organisms may be obtained from the spleen (Rosenow[2]); moreover, it has been shown that various forms of encapsulated bacilli will produce gastric and intestinal hemorrhages. These bacteria, although differing in some respects, have one power in common, namely, the power to exert a "specific effect on blood vessels and produce changes in the blood itself." Letzenberg early reported the recovery of the bacillus of Friedländer from hemorrhagic areas in the mucosa of the stomach and intestine of a child dying from gastro-intestinal hemorrhage. We know also that in

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* Read before the Section on Surgery, General and Abdominal, at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

[1] Rolleston, H. D.: Diseases of the Liver, Gallbladder and Bile Ducts, London, Macmillan, 1914, p. 268.

[2] Rosenow, E. C.: Personal communication to the author.

certain cases of syphilis associated with anemia, the spleen contains spirochetes in large numbers (Giffin[3]). The liver, deriving as it does a large quantity of its blood from the spleen, has every opportunity for picking up toxins and bacteria from the spleen. Thus the spleen must also be recognized as a possible causative factor, not only of changes in the liver, but directly or indirectly, of gastric hemorrhage.

In recurring gastric hemorrhage in which demonstrable lesions in the stomach or duodenum are not present, and other extrinsic causes have been excluded, the rôle of the spleen should be investigated. It is even possible that in such cases when bleeding is sufficient to endanger the patient's life and when the primary focus of infection is not determined, splenectomy (if the spleen is enlarged) may be an indication by reason of the mechanical influence of lessening the venous return to the stomach.

The group of cases in which there is an obvious focus of infection includes cholecystitis, pancreatitis, salpingitis, tuberculous peritonitis, and appendicitis. In these and other conditions, gastric hemorrhage may occur, and not only is a positive diagnosis usually possible, but treatment as a rule is successful.

Several cases of gastric hemorrhage have been observed in our clinic in which there was well-marked appendicitis, and appendicectomy seemed to show that the appendix had been the primary cause of the bleeding. Moynihan[4] early drew attention to this fact. Eusterman[5] has shown that about 2 per cent. of appendix cases and about 5 per cent. of gallbladder cases with marked reflex gastric symptoms gave a history of previous bleeding. The spleen also may act as a primary focus of infection, although our present knowledge would indicate that it acts rather as a medium through which infection from a distant focus is transmitted to the liver.

The group of cases in which fatal or serious gastric hemorrhage occurs and no cause can be demonstrated has been the subject of much controversy. Unless the primary cause for such hemorrhage is found surgical treatment is not clearly indicated, and the same statement is true regarding those acute infections such as typhoid, pneumonia, and in cases of mucous erosions which are so often multiple and occasionally seen at necropsy.

In reviewing these various groups, there are several facts which strongly suggest that gastric hemorrhage may be produced through the same channel in all, namely, the portal circulation. We know, for example, that hepatic cirrhosis is a frequent cause of hematemesis, that hematemesis is often toxic in origin (Adami[6]), that a large part of the blood of the body is transmitted through the liver, and that toxic foci which are associated with gastric hemorrhage are found, especially in the abdomen. Is it not possible that these various focal infections produce chemical or physiologic changes in the liver, changes which, if the cause is not eradicated, progress to the cirrhotic liver? It would seem further possible that the liver under such circumstances may in some manner sufficiently lower the resistance of the gastric mucosa to permit the bacteria, which are consistently present in both true gastric ulcer and in mucous erosions, and which may reach the stomach either by the blood stream or by the food, to set up those diffuse or localized tissue changes.

In other words, it is probable in many of these gastric hemorrhages in which a primary causative focus is established, that the conditions which result in hematemesis are largely under the control of the liver and since the spleen is so intimately concerned in the functions of the liver, it, too, must be looked on as an important factor.

RECAPITULATION

It should be emphasized that the surgical significance of gastric hemorrhage demands:

1. The proof that a gastric hemorrhage has taken place.
2. The determination and eradication of the originating cause, whether chronic surgical lesions in the stomach, or extrinsic foci.
3. The treatment of the hemorrhage per se, the general indication being to carry out operative treatment during the interval between hemorrhages.
4. The recognition of the possibility that many of the extrinsic causes of gastric hemorrhage are toxic in nature, and that the infection takes place by means of the portal circulation through the liver.
5. That not only is the liver of first importance in these heretofore unexplained hemorrhages, but the spleen, by reason of its close association with the liver, is probably an important factor in the problem.[7]

ABSTRACT OF DISCUSSION

Dr. Fred B. Lund, Boston: The recognition that the condition of the spleen may be of importance in repeated acute gastric hemorrhages seems to me destined to be of distinct value. I do not know anything more worrisome to the surgeon than to be called to a case of acute gastric hemorrhage at a distance in the country—a case that has not been studied, or blood examinations made—where he is tempted to employ operative measures to stop the hemorrhage. I have learned that it is poor practice, when the patient is depleted by hemorrhage, to open the stomach and try to grasp the artery in the bottom of an ulcer; also, when hemoglobin is down to 20 per cent. to try to do extensive resection is foolish. Even if the patient dies of hemorrhage, he is more sure to die if we operate than if we let him alone, and the majority of hemorrhages are not fatal. Even the question of a transfusion ought to be put off for a time, because one does not want to increase the blood pressure. The cases most benefited by transfusion are repeated small and frequent hemorrhages from a gastric ulcer. In these cases we must never forget extrinsic causes.

Dr. Donald C. Balfour, Rochester, Minn.: I wish to thank Dr. Lund for drawing such particular attention to the treatment of gastric hemorrhage per se. That is a subject worthy of a separate paper. I have desired to emphasize the possibility that many of these mysterious hemorrhages are more or less directly concerned with the liver and the portal circulation, and that the spleen, though it may possibly be a focus of infection, is more likely a medium through which the necessary infection takes place to produce gastro-intestinal hemorrhage.

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[3] Giffin, H. Z.: The Treatment by Splenectomy of Splenomegaly with Anemia Associated with Syphilis, Am. Jour. Med. Sc., 1916, 152, 516.

[4] Moynihan, B. G. A.: Appendix Dyspepsia, Brit. Med. Jour., 1910, 1, 241-244.

[5] Eusterman, G. B.: Incidence and Diagnostic Value of Blood or Hemorrhage in Gastric and Intestinal Lesions, a Clinical and Statistical Study, St. Paul Med. Jour., 1913, 15, 587-593.

[6] Adami, J. G., and Nicholls, A. G.: Principles of Pathology, Philadelphia, Lea and Febiger, 1909, 2, 408.

[7] In addition to the references cited in the text, the following will be found of interest:

Balfour, D. C.: Splenectomy for Repeated Gastro-Intestinal Hemorrhages, Ann. Surg., 1917, 65, 89-94.

Armstrong, G. E., and Mullaly, E.: Fatal Gastro-Intestinal Hemorrhage, Am. Jour. Med. Sc., 1914, 147, 803-809.

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Mayo, W. J.: Ulcer of the Stomach and Duodenum with Special Reference to End-Results, Ann. Surg., 1911, 54, 313-320.

White, W. H.: Gastrostaxis or Oozing of Blood from the Mucous Membrane of the Stomach, Lancet, London, 1910, 2, 1125-1127.

Clinical Notes, Suggestions, and New Instruments

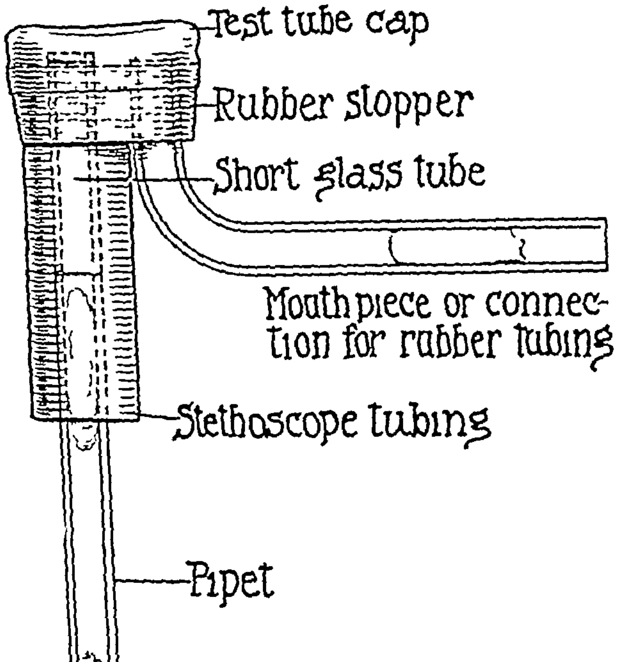
A SAFETY CAP FOR GRADUATED PIPETS*

Frederick L. Gates, M.D., New York

A certain number of laboratory infections are traceable to the handling of pathogenic micro-organisms in pipets which are filled by suction with the mouth and emptied gradually by the admission of air under the ball of the finger. Such accidents may occur either from infection of the end of the pipet by a contaminated finger or from sucking organisms into the mouth, an occurrence against which cotton plugs are not a sure protection.

Rubber bulbs and other simple vacuum and pressure devices are not sensitive enough for use with graduated pipets when accurate control of the meniscus is desired. Even when carefully handled, the elasticity of the contained air is a disturbing factor.

With semifluid cultures also, such as are used in the cultivation of spirochetes, the negative pressure of a collapsed rubber bulb is not sufficient to cause the medium to be forced into a capillary pipet.



Safety cap for graduated pipets

The safety cap illustrated herewith obviates the danger mentioned and yet gives accurate control of the delivery of liquid from the pipet. It consists of a section of two-hole rubber stopper (No. 0 or 1), 1 cm. thick, over which a flat rubber test tube cap[1] is slipped. It may be cemented in place, although that is not necessary. An L of glass tubing forms an easily sterilized mouthpiece, which may be further safeguarded by a cotton plug.

Two cotton plugs and the space in the cap are almost a sure protection against the aspiration of liquid. Connection with the pipet is made by a stub of straight glass tube, which projects into the cavity of the cap and carries a short length of heavy rubber stethoscope tubing. This is more elastic than a rubber stopper and admits various sizes of pipets.

To give a stiff resistance to pressure from above, the pipet should be pushed into contact with the short glass tube. The finger pressing the smooth thin rubber cap down on the end of this tube controls the delivery of liquid with perfect sensitiveness. Fractions of a division on the pipet may be measured, and the column of liquid is obedient at any speed of delivery.

If from strong suction in filling the pipet the cap tends to collapse over the glass tubes, it may be held away by pressure of the forefinger against its rounded edge.

An additional advantage of the safety cap is that the pipet is held at an angle with the line of vision, so that the meniscus is easily visible as it rises in the bore. When several pipets are in use at one time, it is convenient to fit each of them with a cap.

LIQUID AGAR-AGAR IN CONSTIPATION

Orville Harry Brown, M.D., and William Oscar Sweek, M.D.
Phoenix, Ariz.

Constipation may be caused by any one of a number of factors. In certain cases it is imperative that a tumor be removed, that adhesions be destroyed, or that other maldevelopment be eliminated before the desired improvement can be obtained.

As constipation increases in severity, there is a tendency for the development of a vicious circle. The longer fecal material lies in the colon, the more inspissated it becomes, and hence the less likely will an ordinary peristaltic wave dislodge it. As fecal material accumulates in the colon, the weight drags the colon lower and lower. The feces become molded to the wall of the bowel and fail to stimulate to peristalsis.

Even in those cases in which there is a definite mechanical constriction of the lumen of the bowel, some good may be expected by keeping the fecal material soft. To do this agar-agar has been used with noteworthy success. It works by absorbing water and softening the bowel contents; it is indigestible. In the main the agar has been administered with breakfast foods, sauces, etc., by simply mixing the dry powder or shreds with the food.

It occurred to each of us that if liquid agar were taken into the body greater good might occur. In order for agar to be liquefied it must be boiled in water, usually for ten minutes or longer. But it stays liquid until cooled almost to blood temperature, and then it is gelatinous until cooled a number of degrees below body temperature. Therefore if the agar is taken into the stomach while liquid the body heat will prevent it from solidifying past the jelly stage. We reasoned that if a sufficient amount of the liquid agar were taken, and with enough water, the feces would be softened more efficaciously than when the same amount was taken dry.

The taste of the liquid agar, slightly flat and insipid with perhaps a little musty suggestion, is as a rule not disagreeable, but to some its taste is highly displeasing. To mask the taste we have advised various procedures. Taste is an individual matter, and hence the preparation pleasing to one may be disagreeable to another. In order to hope for benefit from the use of the agar, it must be prepared so palatable that the patient will willingly take it in sufficient quantity, frequency and duration.

The directions we ordinarily give for its preparation are as follows:

Take 2 heaping tablespoonfuls of the agar powder, flakes or shreds, add to 1 quart of water and boil till the agar is thoroughly liquefied, sweeten and add juice of one lemon, then drink the entire quart while hot.

A quart is a considerable quantity of liquid for some persons to consume in the course of a few minutes. Heating the agar over or preparing smaller amounts several times a day is a laborious task. We have met this problem by having the patient provide himself with a quart vacuum bottle. The quart of hot agar lemonade can be prepared in the morning, poured into the vacuum bottle, and taken leisurely during the day. We have become convinced that the material is most efficacious when taken between meals.

We have had patients make use of orange, grape fruit, vanilla, maple or other flavoring in place of the lemon. A coffee, chocolate or tea may be prepared and be most pleasing Again a bouillon agar may please We have one patient who preferred to take the hot agar with only a pinch of salt added Another takes it cooked with a cereal, this should not be allowed to cool before it is eaten

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*From the Department of Pathology and Bacteriology, the Rockefeller Institute for Medical Research.

[1] Eimer and Amend Catalogue C, Fig. 6026, ¾ inch.

As each patient has his own idiosyncrasies as regards taste, he will be disposed to guide the flavoring of the agar

The liquid agar will not have its beneficial effect usually until used several days Commonly, however, some good will be apparent within a week if a quart of hot agar is taken daily At the end of a few weeks, it may be that a tablespoonful of the agar or even less to a quart will suffice for the day's supply

In case the 2 tablespoonfuls of agar to a quart of water daily is not productive of benefit within two weeks, the amount of agar should be increased We have had patients who took more than double this amount before good results were obtained We have had a very few who have apparently used the agar faithfully and yet have received no benefit

SUMMARY

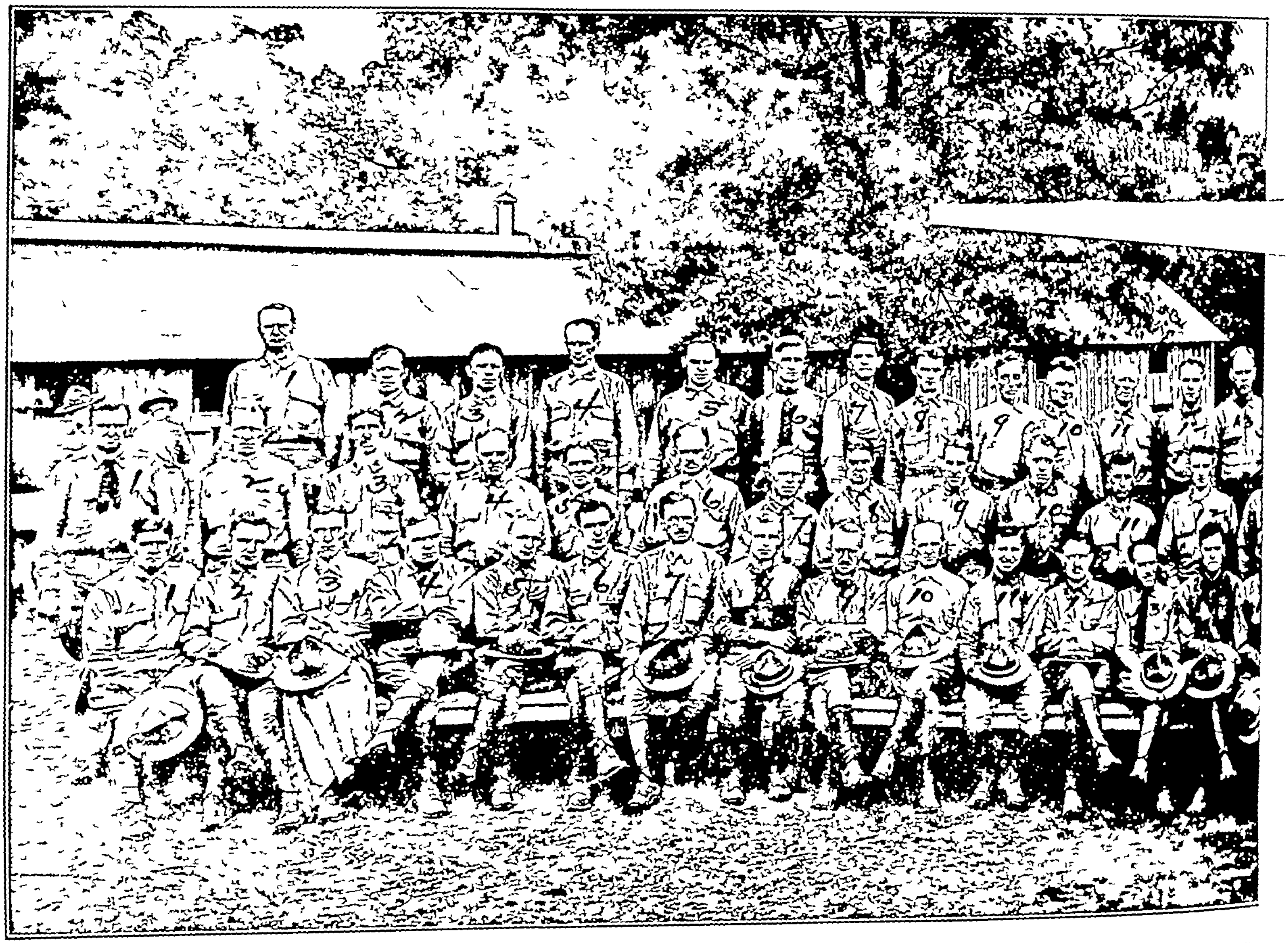
We recommend agar-agar for constipation, it seems to be most efficacious when taken hot It is most readily taken as a hot lemonade, chocolate or bouillon Other therapeutic measures directed at the removal of mechanical obstructions should also be employed

Special Article

AT FORT OGLETHORPE

The medical officers at Ft. Oglethorpe, Ga, believe that the War Department merits special praise for selecting that place for their training camp Many of the physicians from the Eastern and New England States, who were dreading the ordeal of spending a summer in the Southland, are now sympathizing with their less fortunate brethren who are detained in the hot northern cities The customary morning greeting here is, "How many blankets did you require last night?"

The camp is located in beautiful Chickamauga Park. It is a veritable gold mine of historic interest There are scores of monuments on every hand, which relate the stories of valor and bloody struggles of the days of Sixty-Three Occasionally one is surprised to find how much fighting can be done without large casualty lists One of the officers ran across a monument erected to a battery of artillery, which bore an inscription relating how it fought for twelve hours before it was compelled to retire, and suffered a loss of one man wounded and one mule killed



Instructors and Student Officers —This rank has no reference to the rank held by the men in the service, but is given hats are captains in the student officers' companies The first and second lieutenants are indicated by white badges over

Front Row Left to Right 1 First Lieut. Llewellyn Powell, 2 First Lieut Allen H Walker, 3 First Lieut Richard S Spahr, 4 First
George M Piersol, 9 Capt. Thomas R. Chambers, 10 First Lieut Charles S Flagler, 11 Capt James F Coupal, 12 First Lieut Conrad
Alexander D Parce, 18 Capt. Calvin D Cowles Jr , Major Raymond C Turck, 20 Lieut. Col Henry Page M C., 21 Major Roger Brooke, M C.
Walter R Weiser, 28 First Lieut. Damon B Pfeiffer, 29 Major William Pepper —Second Row 1 Capt Albert E McEvers, 2 First Lieut. Roscoe
7 First Lieut Edward D Ellis, 8 Capt. Richard Hirsch, 9 First Lieut. William H Barrow, 10 First Lieut. Arthur R. Weed, 11 First Lieut.
Devron, 16 First Lieut Robert E Siebels, 17 Capt Frank Fogle, 9 M Corps, 18 Capt. Dunning S Wilson, 19 First Lieut. William W Jarrell
Lieut. Eugene J McCarthy, 25 Capt Henry S Beckford, 26 Major George F Keenan —Third Row 1 First Lieut. Theodore Le Boutillier, 2 First
7 Capt Elliott Edie, 8 First Lieut. George Dorsey, 9 First Lieut Widner E Doremus, 10 First Lieut T Z Cason, 11 Capt William E Butler
Lieut Henry T Nicolle, 17 Capt Eugene Davis, 18 First Lieut Frederick J Quigley, 19 First Lieut. Gustave P Grabfield, 20 First Lieut William
25 First Lieut Charles J Cole, 26 First Lieut William H McLain, 27 Capt. John T Halsell, 28 First Lieut Thomas V Williamson, 29 Firs

Every man is beginning to realize that it requires more than a thorough knowledge of medicine to make a competent military surgeon The work is made easier and the attention of the men held more firmly by giving map readings war games etc connected with the various battles fought in this vicinity among which are the battles of Missionary Ridge and Lookout Mountain The latter was the first battle ever fought above the clouds Field hospital ambulance companies and regimental units are formed and men assigned to work in them which is a great factor in the training Everyone knows that actual experience is a much better teacher than all the correspondence schools combined

From the smallest town practitioner to the nationally known surgeons who are here no one would forego the opportunities afforded of playing a part in the greatest drama the world has ever staged The enthusiasm and spirit shown in performing the duties assigned is something to be marvelled at Every day spent here is an epoch in a man s life An example from the many that could be given is the review held here a few days ago in which probably the greatest number of military surgeons ever assembled at one place were on parade

Home talent vaudeville shows, golf tournaments, medical societies etc., are among the many things arranged for the recreation of the men during their off hours Their comforts are well provided for and if war had no greater hardships than they are undergoing at the present time it is to be feared that the civilian population would be in dire need of physicians as there would be nothing but military surgeons Many of the men have brought their families and each week end is filled with teas, dinner dances and other social gayeties

The health of the men is excellent and about the only things the camp surgeon has had to treat thus far have been minor ailments associated with healthful recreation

The following is a list of the men at Fort Oglethorpe on August 1

ALABAMA

Grace Frank G Birmingham
Scott Walter I Birmingham
Hudnall J R Coalmont
Robbins Wm J Ensley
Ferguson Burr, Fairfield
Kilpatrick Geo C Irvington
Armistead, John R Jackson

ARKANSAS

King Harry C, Ft Smith

CANADA

Walker Allan H, Toronto Ont.

CALIFORNIA

Brooke Roger San Francisco

CONNECTICUT

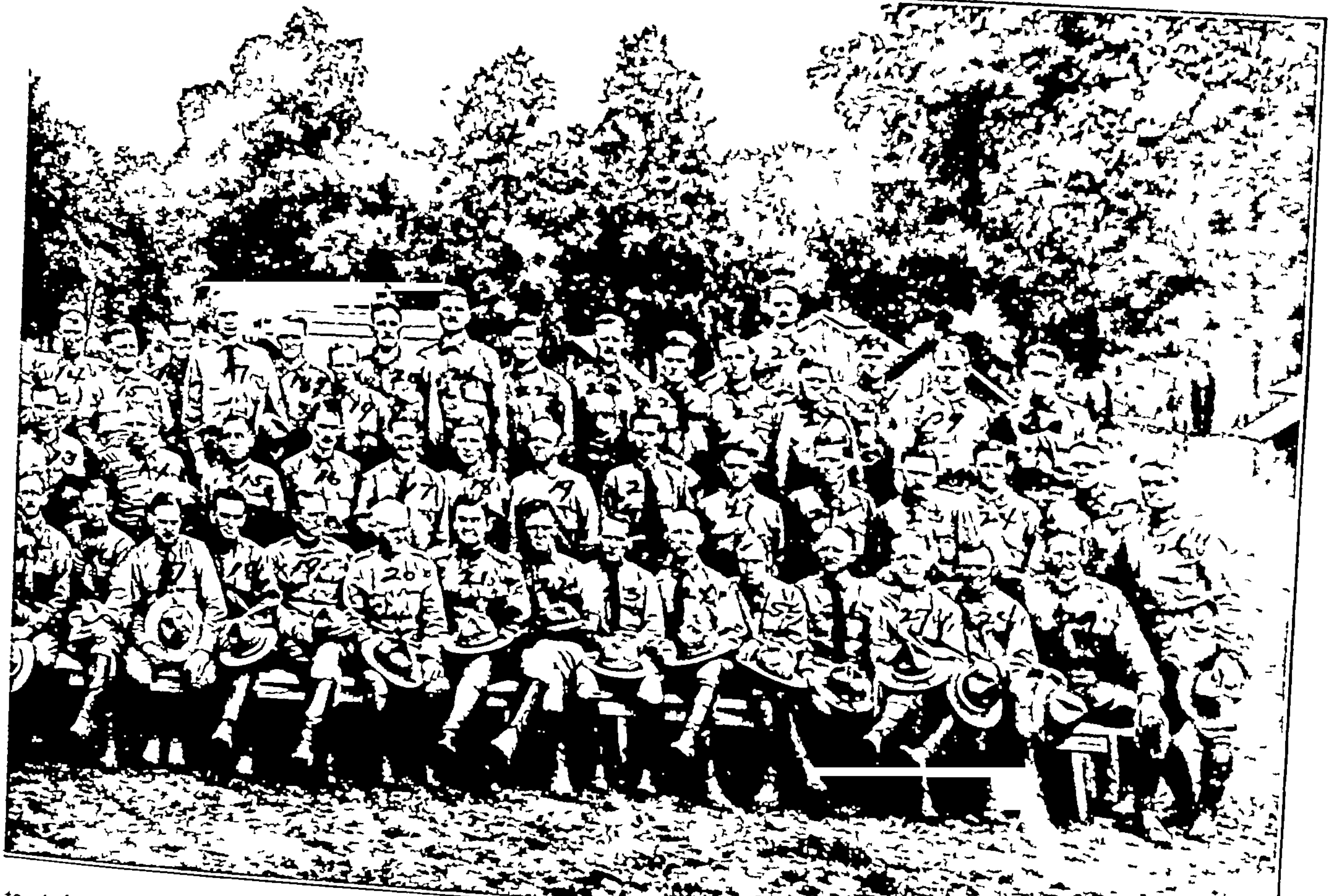
Poole Lawrence I, Bridgeport
Sprague, Charles H Bridgeport
Braude Samuel Henry, New Haven
Butler, W E., New Haven
Wilda Edwin New Haven
Comfort Chas W, New Haven
Weed Arthur R New Haven
Ganey, Joseph M, New London
Lawler, Daniel H, Windsor Locks

DELAWARE

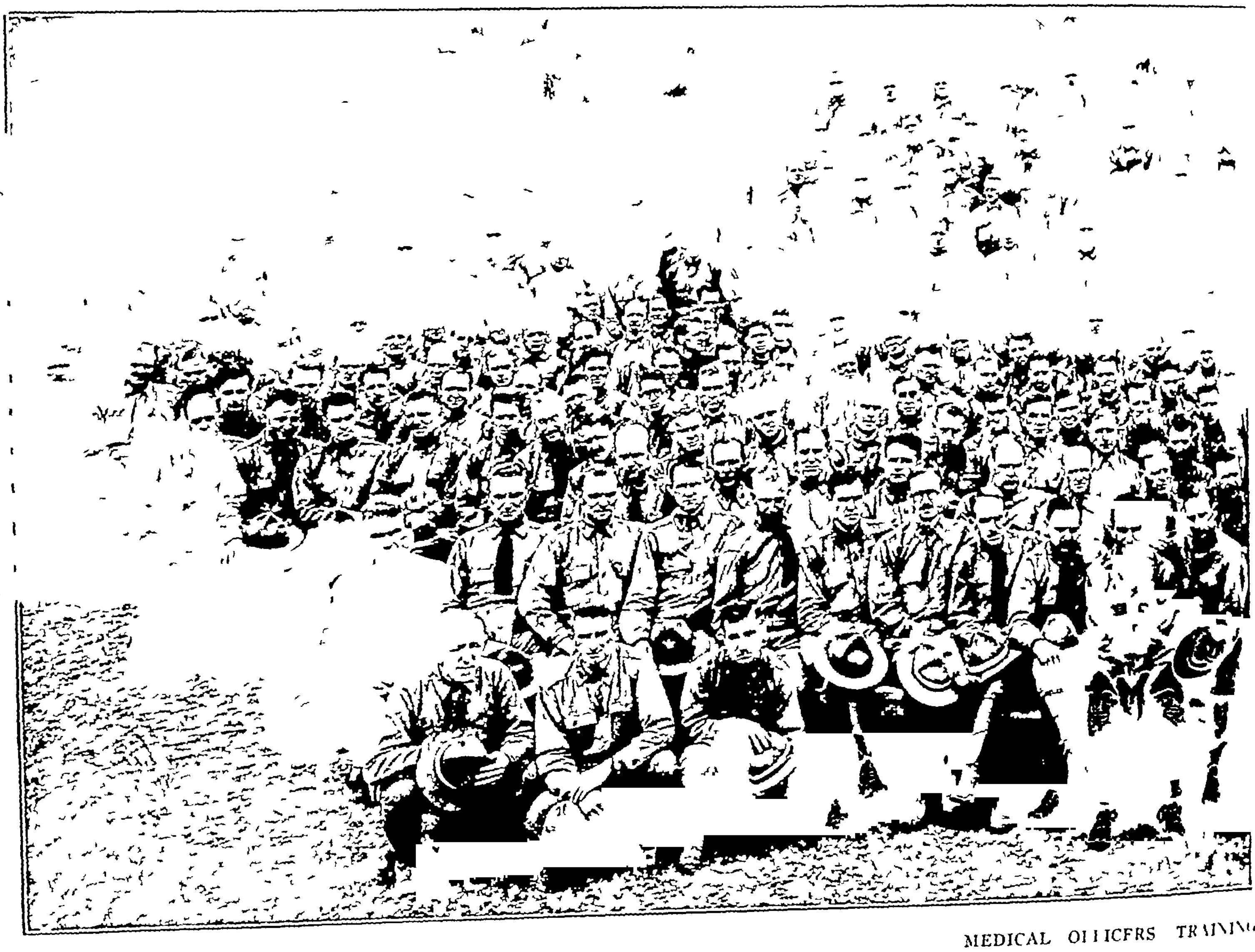
Elliott J Roscoe, Laurel

DISTRICT OF COLUMBIA

Collins J H Washington



to student officers to indicate that they have obtained proficiency along certain lines Those wearing white bands on their
the left pocket and by red badges which do not show in this picture
Lieut. J Harry Collins 5 First Lieut. Guy B Denit 6 First Lieut John T MacDonald 7 First Lieut. William E Wilmerding 8 First Lieut
Wesselhoeft 13 First Lieut. Russel R. Jones 14 First Lieut. John A Rogers 15 Capt David W Parker 16 Capt Royal Reynolds 17 Capt
22 Major Robert L Carswell 23 Major Seartus J Owen 24 Major Bial F Bradbury 25 Capt Mahlon Ashford 26 Capt Howard Fox, 27 Capt.
L. Perkins 3 First Lieut. Fred H Bloomhardt 4 First Lieut. William Bates 5 Capt Frank R Maura 6 First Lieut Charles W Comfort, Jr,
Henry F Sawtelle 12 First Lieut. Joseph R. Helff 13 First Lieut Newgate M Owensby 14 Capt Elias M Duffield 15 Major John A
20 First Lieut. James R. Wells 21 First Lieut Robert A Kilduffe 22 First Lieut. Walter B Martin 23 First Lieut. Ivy A Pelzman 24 First
Lieut. Don Preston Peters 3 Capt. William W Babcock 4 Charles E Maxwell 5 Capt Edward J G Beardsley 6 First Lieut G C Tillman
12 First Lieut. James J O Connor 13 First Lieut John H Musser Jr 14 First Lieut. Burr Ferguson 15 First Lieut John A Farrell 16 First
A Newbold 21 First Lieut Henry P Brown 22 First Lieut J R Huduall 23 First Lieut Frank Freeland 24 First Lieut Deslia H Harris,
Lieut. Charles H. Fait 30 First Lieut Edward A Pitcairn.



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VERMONT

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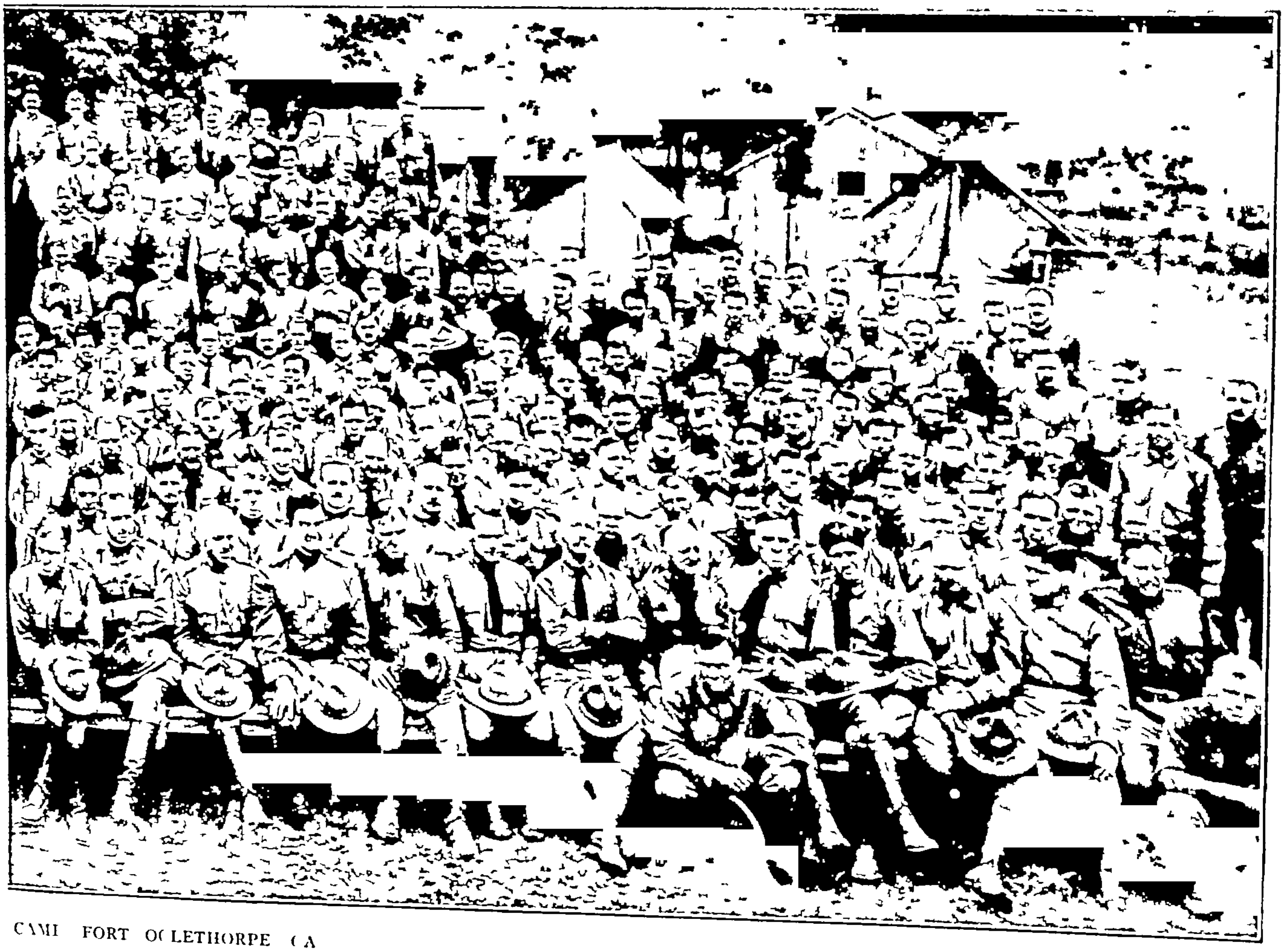

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Peple Wm L, Richmond
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THE JOURNAL OF THE
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535 North Dearborn Street . . Chicago, Ill.

Cable Address . . "Medic, Chicago"

Subscription price . Five dollars per annum in advance

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SATURDAY, AUGUST 11, 1917

THE EFFECT OF STARVATION ON INTESTINAL BACTERIA

The prevalence of micro-organisms in the alimentary canal is a well recognized feature of the manifestations of the digestive functions It is generally known that much of the dry matter of the feces consists of the bodies of bacteria, most of which are dead How large a contribution to the excrement is furnished by those micro-organisms that have found their way into the alimentary tract, or have been developed within it, cannot readily be estimated As might be expected from the varying nature of the diet of adults, carrying with it quite unlike amounts of indigestible matter, the admixture of bacterial bodies must be widely different under different regimens When one reads, in the textbooks, that probably about one third of the dry substance in the stools of normal adults is bacteria, it must be borne in mind that the statistics reported by different investigators range from 9 to 42 per cent It is even stated that in infants with pronounced constipation two thirds of the dry substance of the feces has been found to consist of bacteria In some cases over 50 per cent of the total nitrogen of feces has been reported to be of bacterial origin [1]

There has been considerable discussion concerning the factors which may alter the character of the intestinal flora, and the possible effects of changes in diet in this respect have been reviewed from time to time in The Journal Less information is available regarding variations in the number of micro-organisms that inhabit the alimentary tract The bacteria-free condition in which this starts its functions prior to the discharge of the meconium after birth is soon followed by a practically permanent state of bacterial invasion to the very end of life The hope of effecting a sterilization of the long gastro-intestinal canal has often been awakened, only to fade away before the realization of the impossibility of accomplishing such a result without destruction to the living tissues amid which the micro-organisms are harbored

The output of fecal bacteria has been found to undergo a decrease under the influence of water drinking with meals [2] In animals, Cushing and Livingood[3] found that, after a period of twenty-four hours' starvation, a relative amicrobism of the small intestine results This has been verified recently by Sisson[4] in the Department of Pediatrics and Bacteriology, Johns Hopkins University Examination of the intestinal contents after periods of starvation shows definite changes in the number of organisms, contrasting with the profusion of bacterial growth normally found Changes in the kinds of organisms persisting after periods of starvation were not noted The greatest diminution was observed in the duodenum, in some instances, however, but few organisms were present in the contents of the ileum The contrast between the paucity of organisms at this level and the large number present in the cecum was striking Although the number of organisms is, to a great extent, dependent on the food residue present, absolutely sterile specimens were never obtained, even after the food residue was undoubtedly absent Thus the condition produced by starvation is, as Sisson expresses it, one of relative amicrobism

FOOD POISONING, WITH SPECIAL REFERENCE TO BOTULISM

There are but few persons who have not suffered from more or less severe attacks of acute gastro-intestinal disturbance which could be reasonably ascribed to something eaten shortly before By far the most of such attacks are mild and quickly overcome, and it is only when the attack is serious and affecting many persons at the same time that it attracts particular notice, and becomes perhaps the subject of public record In his valuable little book on food poisoning, Jordan[5] points out that as cases of food poisoning are not required to be reported, we possess only imperfect information as to its occurrence, casual press reports being the only available source of information as to its prevalence Through press-clipping bureaus and other sources, from October, 1913, to October, 1915, Jordan learned of 657 group and family outbreaks and 375 individual cases in this country The group and family outbreaks involved over 5,000 persons He believes that at present probably the majority of instances escape notice and that the number of persons affected by food poisoning in the United States in the course of a year is much larger than indicated by the figures he obtained Until we have a larger amount of dependable data, any general conclusions of value as to the exact causation, frequency, and immediate and remote results cannot be drawn As ordinarily understood, food poisoning is due to the composition, contents or contamination of food It includes intoxication by organic poisons in normal animal or plant tissues the results of eating food into which poisons, mineral or organic, have been introduced by accident or in order to improve the appearance or keeping qualities, infections from the ingestion of bacteria and other parasites present in foods, the most important food-borne bacterial infections being typhoid fever, cholera, tuberculosis, paratyphoid infections and milk-borne diseases such as diphtheria scarlet fever and streptococcus sore throat, and poisoning due to the development of toxic substances in food by the growth of bacteria and other micro-organisms

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[1] MacNeal, Latzer and Kerr Jour Infect Dis, 1909, **6**, 123 Blatherwick, Sherwin and Hawk Jour Exper Med, 1911, **14**, 433 Blatherwick and Hawk Biochem Bull, 1913, **3**, 28

[2] Mattill, H A, and Hawk, P B, Jour Am Chem Soc, 1911 **33**, 1999 Blatherwick, N R, and Hawk, P B Biochem Bull 1913, **3**, 28

[3] Cushing, H, and Livingood, L E *Contributions to the Science of Medicine by Pupils of Welch*, 1900, p 543

[4] Sisson, W R Experimental Studies of the *Intestinal Flora* Am Jour Dis Child, February, 1917, p 117

[5] Jordan, E O Food Poisoning University of Chicago Press 1917

At this time, when domestic canning of vegetables is being taken up on a large scale, it may not be without interest to mention some of the chief facts known about botulism, the best established form of poisoning by means of toxic bacterial products in food This poisoning was described in 1820 by Kerner German poet and medical writer, who cited 174 cases with seventy-one deaths, in most instances connected with the use of smoked sausage (hence the name botulism, from *botulus*, sausage) Paratyphoid infections may be conveyed by sausages also, and such infections must be distinguished from botulism, which has a characteristic set of symptoms and a distinct cause Quite a number of instances of botulism have been recorded in this country, and traced to ham, beans and other foods, so that the name "sausage poisoning" is hardly appropriate any longer In botulism the nervous system is strikingly involved Dizziness, double vision, difficulty in chewing and swallowing, and other nervous symptoms occur, there is no fever, and in contrast with the traditional type of food poisoning there may be only slight or no gastro-intestinal symptoms Stiles[6] thus describes his own attack, most likely due to minced chicken

> Vertigo and nystagmus developed [a few hours after eating] in a startling degree, the car [in which I was being taken to my house] seemed to be ascending an endless spiral the stars made circles in the sky, and the houses by the wayside reeled. The lighted doorway of my house seemed to approach and surround me as I was carried in My bed for the moment presented itself as a vertical surface which I could not conceive to be a resting place Whenever I opened my eyes on this day [the *next day*] the impression of gyration of the room was appalling To turn my head even very slowly from one side to the other brought an accession of the overpowering giddiness [Eight days after the beginning of the attack] the nystagmus now became limited to momentary onsets, but in its place I became aware of a peculiar diplopia The image of one retina was not merely displaced from the position of its fellow, but was tilted about 15 degrees from parallel This fantastic diplopia gradually gave place to the familiar variety, and this occurred less and less often as my convalescence proceeded From [this date] my recovery pursued a course which was dishearteningly slow but free from any setbacks Among the persistent symptoms were the visual difficulties mentioned The left pupil was usually smaller than the right and I thought I detected a slight failure to relax accommodation with the left eye Reading was difficult for several weeks and the ability to write as requiring closer fixation, was still longer in returning

The interval between eating the guilty food and the onset of symptoms usually is from twelve to forty-eight hours, but may be less There are no distinct changes in the organs, the nervous symptoms being perhaps explainable as due to disturbances of the cerebral circulation with hemorrhages and thromboses in medulla and pons[7] The botulism poison is a toxin produced by the spore-bearing bacillus discovered by Van Ermengem and named by him *Bacillus botulinus*, a strict anaerobe, which does not grow in the human body being limited in its pathogenic role to the toxin it develops in foods outside the body Hence botulism is a strict intoxication not an infection We do not know anything about the distribution of this bacillus in nature Its poison is a true bacterial toxin, which reproduces the clinical *picture* of botulism in animals, and when injected in small nonfatal doses it evokes the elaboration of a specific antitoxin The bacillus apparently is widely distributed but it seems as if the conditions for its entrance and multiplication in human food are not *often present* Jordan states that practically all cases of botulism have been caused by food which has been given some sort of preliminary treatment, as smoking, pickling or canning, then allowed to stand for a time, and eaten without cooking The growth of the bacillus in a food does not necessarily alter it in such a way as to arouse suspicion, meat that has caused botulism seems to have always come from sound animals, and beans causing botulism have also been noted as natural in appearance, taste and smell It seems that meats and vegetables prepared in the home are more likely to give rise to botulism than those prepared in large canning factories in which steam under pressure is used It would be a wise precaution always to heat thoroughly the food in canning and to reheat all prepared foods before eating, because *B botulinus*, its spores and its toxin are destroyed by relatively slight heating Foods like salads should not be allowed to stand over night before being served When visual disturbances and other symptoms of botulism appear, the stomach should be emptied and cathartics given, because the poisoned food may remain for a long time in the digestive tract

We probably have much to learn still in regard to the causes, varieties and symptoms of food poisoning It would not be surprising if careful clinical study of cases would result in the differentiation of new forms not yet recognized as distinct The progress of knowledge of food poisoning would be furthered greatly if it were made reportable to our health authorities, this would lead to closer investigation, which eventually would result in better means of treatment and prevention

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[6] Stiles P G A Case of Apparent Food Poisoning of the Type known as Botulism or Allantiasis, The Journal A. M A. Dec 27, 1913 p 2301 (cited by Jordan)

[7] Wilbur R. L, and Ophuls, William Botulism, Arch Int Med, October, 1914 p 589

NO NEED FOR DRAFTING THE MEDICAL PROFESSION

It is to be regretted that there has been so much hysteria in regard to procuring the medical force of the new National Army It is still more to be regretted that this hysteria—absolutely undeservedly—has reflected unfavorably on the medical profession As late as August 1 the Associated Press sent out a statement to the effect that a petition was being circulated which

> declares that the method of recruiting the Medical Corps of the Army by commissioning reserve officers in that Corps who volunteer has proven a failure and asks that in behalf of the welfare of the nation a draft for physicians be made

This is merely an echo of what many men with the best motives have advocated It is based on the assumption that the newspapers have had correct figures regarding the number of men who have accepted commissions in the Medical Reserve Corps, and that the medical profession was not responding to the call Even within the last two weeks, statements have appeared in the newspapers, apparently from authoritative sources, to the effect that less than 3,000 physicians have accepted commissions in the Medical Reserve Corps

What are the facts? On August 4 approximately 16,000 physicians had offered their services and had made application for commission in the Medical Reserve Corps Of this number, nearly 14,000 had been recommended for commission Some of the remaining 2,000 applications were pending, others had been rejected for cause Of the 14,000 commissions recommended, nearly 9,000 had been accepted This leaves about 5,000 applications which may be accounted for as follows 1,300 were pending in the Adjutant-General's Office, an uncertain number had been sent out too recently to allow for the acceptance to be returned, some who had received commissions were delaying — for various causes — in sending in the acceptances What proportion of this group will finally accept their commissions is problematical, but based on information which we believe to be reliable, we confidently assert that there are at the present time at least 13,000—probably 14,000 is nearer the correct number—physicians ready when called on for active service These figures do not include physicians who have entered the regular Medical Corps during the last few months, or those connected with the National Guard, the latter at least 1,000 in number Moreover, from 100 to 150 new applications are reaching the Surgeon General's Office daily To advocate a special draft of physicians under these circumstances is an insinuation against the medical profession which should be insistently resented

We repeat The physicians of this country have been and are offering their services, at tremendous sacrifices in many instances, and are doing their full duty without compulsion and without a special draft We are confident that not only the present, but every future need which the country may have for medical men, will be supplied by our profession, without coercion or threats

BIOCHEMICAL RELATIONSHIPS IN METABOLISM, PARTICULARLY IN RESPECT TO CHOLESTEROL

In speaking of what he naively calls the world of biochemical fact and error, von Furth[1] says, "Not without feelings of decided rebellion, at a single stride the darkly yawning chasm of intermediate metabolism must be passed, with the vast number of unsolved enigmas it harbors, and attention directed to the end-products of metabolism" Among these problems, for example, is the question as to what extent definite organs are especially concerned with specific metabolic performances For a long time the function of urea production was ascribed almost solely to the liver, and many attempts were made to demonstrate that a perversion of the hepatic activities would be indicated by inability of the organism to produce urea Decrease in urea output, to be sure, was sometimes found associated with liver disease, it is clear now, however, that this outcome was due, not to inability of the body to synthesize urea, but to the "deflection" of nitrogenous end-products of metabolism for the formation of ammonia to counteract the acidosis of hepatic disorders It is understood that the liver can be largely excluded from normal functioning without a disappearance of the urea-producing capacities of the body Presumably urea formation is a fairly common property of active cells — a reaction prominent in the liver because of its dominant glandular features, but no more confined to that organ than the fundamental capacity of oxidizing nutrients appears to be

It is a true factor of safety for the organism that significant biochemical reactions are not easily perverted in the body even when it is invaded by disease The tendency of these reactions is to proceed in a normal way as far as possible So far as nitrogenous metabolism goes on at all, amino-acids tend to be utilized and urea tends to be produced Organs of digestion or excretion may become impaired, an imperfect circulation may fail to bring oxygen in adequate measure or remove carbon dioxid and other metabolic products, but the intermediary processes go on with an almost unexpected precision of reaction, making anomalous products a decided rarity.

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[1] Von Fürth, Otto *Chemistry of Metabolism*, translated by A J Smith, Philadelphia, 1916, p 97

Bloor and Knudson[2] have recently expressed the same idea, asserting that the metabolic habits of the individual are not easily upset even by severe disease. In illustration they cite their findings in respect to the constancy of relationship between free and bound cholesterol in the blood, even in many pathologic conditions. The blood contains both cholesterol and its esters with fatty acids, the latter now appear to be almost as generally distributed in the body as the cholesterol itself. Bloor[3] has suggested that there is some connection between cholesterol and fat metabolism. In their most recent observations on the constant relation or balance between free cholesterol and cholesterol esters, and likewise between these esters and other blood lipoids, not only in normal human blood but also in many pathologic cases, Bloor and Knudson[2] find added support for the assumption previously made that cholesterol participates in an active degree in the metabolism of fats. In any event there is evidently an efficient regulation of the lipoids, permitting little variation from normal relationships even in abnormal conditions. The same is true of many other blood constituents.

In view of the interest lately aroused in the problems of the biochemical occurrence of cholesterol, reference may be made here to estimations by Denis[4] of the content of this compound in the blood of many persons suffering from a variety of more common diseases. Among the pathologic conditions examined, hypercholesterolemia was found to exist only in diabetes, and in a relatively small number of cases of this disease. Low cholesterol values are not characteristic of any special pathologic condition, but are invariably found in conditions in which marked prostration or cachexia exists. Denis asserts that cholesterol determinations in the blood are therefore at present of no value in the clinical diagnosis or prognosis of disease. Perhaps it is too soon, however, to accept this as a final dictum in the absence of more searching experimental inquiries.

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[2] Bloor, W. R., and Knudson, A.: Cholesterol and Cholesterol Esters in Human Blood, Jour. Biol. Chem., 1917, **29**, 7.

[3] Bloor, W. R.: The Distribution of the Lipoids ("Fat") in Human Blood, Jour. Biol. Chem., 1916, **25**, 577. The Lipoids ("Fat") of the Blood in Diabetes, ibid., 1916, **26**, 417.

[4] Denis, W.: Cholesterol in Human Blood under Pathological Conditions, Jour. Biol. Chem., 1917, **29**, 93.

Sanitation in the Dutch West Indies.—In 1916 the Dutch government sent a specialist to Curaçoa, one of their colonies in the Caribbean region, to study sanitary conditions. A public health department at Willemstad has been the result of his visit, steps have been taken to clean the streets daily, to eradicate mosquitoes, to lessen and prevent the spread of venereal diseases by building a hospital for their treatment, and a well equipped bacteriologic laboratory has been established. A quarantine law modeled after the American measures in Panama and at gulf ports has also been passed. According to the report of U. S. Consul George S. Messersmith, Curaçoa (*Commerce Reports*, July 17, 1917), the general health of the colony was good during the past year.

Current Comment

MEDICAL STUDENTS AND CONSCRIPTION

In our issue of July 28 we called attention to the fact that no provision had been made by the War Department whereby medical students would be enabled to complete their medical training, and requested that all students send the facts regarding their draft numbers and numerical order of their call. A double postal card was also mailed to all students whose home addresses were available. There were all told 13,764 medical students enrolled during the last session, of whom 3,379 graduated, leaving 10,385, made up of 4,107 freshmen, 3,117 sophomores, 2,866 juniors, and 295 seniors who were not graduated. Tabulated statistics regarding 5,900 or 56.9 per cent of all undergraduate medical students are as follows:

Class	Total Replies	Total to be Drafted No.	Total to be Drafted %	First Call No.	First Call %	Second Call No.	Second Call %	Later Calls No.	Later Calls %	[illegible]	[illegible]	[illegible]
Freshmen	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11	[illegible]
Sophomores	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11	[illegible]
Juniors	[illegible]	[illegible]	[illegible]	415	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Seniors	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	40	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]
Not stated	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
Total	[illegible]	[illegible]		[illegible]		[illegible]		[illegible]		[illegible]	[illegible]	[illegible]
Percentage		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]	[illegible]	[illegible]

This table is based on the replies received up to the time of preparing for the press. The replies are still pouring in. While the table represents only a little more than 56 per cent. of the whole, it gives those interested an opportunity to estimate the effect of the draft on the different classes. As shown in the table, 5,053, or 85.5 per cent. of the students who have already replied, are subject to the draft, and of these 29 per cent. are included in the first call, 19.4 per cent. in the second call and 51.6 per cent. in later calls, 12.4 per cent. are exempt on account of age, 0.5 per cent. are aliens, and 1.6 per cent. have already enlisted. As will be noticed, 729 are exempt on account of age, of these 606 are under age, and 123 over the age limit. Unless some arrangement is made, therefore, whereby these students are enabled to complete their medical training, classes in medical schools will be seriously depleted, the supply of physicians for the future will be seriously reduced, and this country will suffer from an error similar to that made in England and France where medical students were sent to the front. Furthermore, failure to exempt medical students from the draft will be a serious injustice to many, since a few months ago the Council of National Defense, with the apparent agreement of the War Department, urged medical students not to enlist in the Officers' Reserve Corps but to remain in college and complete their medical training. Had not that request been made, many students would have voluntarily enrolled in officers' training corps, where many of them would doubtless have been successful. Even though less than a third of the medical students of draft age will be included in the first call, a much larger proportion will be lost to the medical schools, since, in the absence of a definite understanding, many of the others will enlist voluntarily in the ranks, in ambulance corps or in officers' training corps. A definite decision on the part of the War Department relative to medical students is imperative. Unless such decision is made, not only will our civil hospitals lack adequate intern service, but the government will lose by the fact that those capable of skilled service will have been deflected to work which can be as well done by others.

CAMOUFLAGE

Camouflage, as most of our intelligent readers know, is not the name of a Swiss cheese, but of a military measure. It is reminiscent of the little jingle

Little dabs of powder
Little specks of paint
Make the girls' complexions
Look like what they ain't

Camouflage has been extensively used in France to make spies and investigators believe that a hidden battery possessed of the power of completely annihilating several regiments of hostile troops is merely an inoffensive arboreal retreat or a part of the surrounding landscape. Used with reverse English it causes an old keg to resemble a trench mortar capable of hurling tons of steel. But camouflage is not wholly confined to the war zone. The word fits so aptly many aspects of our daily life that it will soon be a part of our daily conversation. F'rinstance, when a newspaper says that the death rate among the doctors is higher than that of any other part of the service, some camoufler has been camouffling. When it is announced that the army needs 34,000 additional doctors, that's camouflage. But it's psychic not physical camouflage. Even so it may mislead.

"THE DOCTOR'S DILEMMA"

Among the many interesting developments in connection with the mobilization of the new National Army, there is one which has a particular interest to physicians. It is best illustrated by an example. A Canadian by birth, well educated and doing good work in medicine, who had recently taken out his first papers, made application for admission to the Medical Reserve Corps. Because he was not a fully naturalized citizen, he was informed that he was not qualified for this corps. Now he writes that he is within conscription age, was drawn on the first call, and has been ordered to report for examination. If he is physically fit, he will be told to await orders as to when he shall report to the cantonment camp. "What will become of me?" he asks. "Am I to go into the line as an ordinary soldier? It certainly looks that way." From the communications we are receiving, a large number of physicians are in the same predicament. We regret that we cannot answer the questions; the problem probably will be solved by the proper authorities in due course. But the condition is a peculiar one. According to one law, an alien physician who has taken out only his first citizenship papers is not eligible for the Medical Reserve Corps; another law makes him subject to conscription. The problem applies to other than the medical section of the Officers' Reserve Corps — to the quartermasters', engineers', ordnance, signal, judge-advocate and other sections of the Officers' Reserve Corps. This conflict between laws relating to practically the same proceeding undoubtedly will be overcome either by regulation or by new legislation.

THE EXPERIMENTAL PRODUCTION OF CANCER

A few weeks ago THE JOURNAL commented on the fact that Yamigawa and Ichikawa[1] had been able to produce cancer at will on the rabbit ear by protracted irritation with applications of tar. Recently these investigators have reported further experiments with this method.[2] In the newer experiments, a cancerous degeneration became evident by the one hundred and third day as the shortest interval and by the five hundred and sixty-fifth day as the longest interval in the successful cases. In three instances, metastasis was found in regional lymph glands. Tumor thrombosis in the small veins was detected in many cases, but metastasis in internal organs by way of the blood stream has not yet been encountered. These experiments confirm the previous statement that protracted stimulation alone, without an inherited tendency or any specific agent, is able to induce cancer with typical cancer metastasis. They demonstrate further that on cessation of the irritation the carcinoma may retrogress and be crowded out by proliferation of connective tissue. In these cases the cancer cells do not return to normal, but are prevented from further growth by the pressure of the proliferating connective tissue, which finally replaces them completely.

THE ROLL OF HONOR

In a few weeks we hope to publish the data regarding what the profession of each state and of each county of each state has done toward providing physicians for the Army. At that time the names of those who have accepted commissions in each county will be given, together with the number of physicians in the county and the population. Thus it may be known what states and what communities have supplied their quota of physicians.

NOT YET TIME TO RELAX

We can be proud of the fact that there is an ample supply of physicians for the immediate needs of our Army, but we must not cease recruiting. An analysis of the needs of our Army made on June 1 indicated that 20,000 medical officers would be required to complete the program for the raising of the Army outlined by Congress and the President, that is, the regular Army, the National Guard and the full National Army. This is a liberal allowance since the maximum

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[1] The Experimental Production of Cancer, Editorial, The Journal A. M. A., June 16, 1917, p. 1818.

[2] Yamigawa and Ichikawa: Japan. Ztschr. f. Krebsforsch., 1917, 11, 19.

Army in the field as at present defined by law is 1 700,000 men Adopting the minimum estimate that there are now 13,000 medical officers commissioned in the reserve corps, we should continue our efforts not only until the full 20 000 physicians are provided but also a surplus It is well to have a big reserve

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Medical Mobilization and the War

Red Cross Commission to Italy

The Red Cross War Council has announced the appointment of a special Red Cross War Commission to Italy which will advise how American Red Cross activity can best be exerted to meet the needs of the soldiers and civil population of that country This is the fourth Red Cross Commission to go to Europe the others having gone to France to Russia and to Roumania The Commission to Italy is headed by George F Baker Jr., vice president of the First National Bank of New York City With him go John R Morron president of the Atlas Portland Cement Company Dr Thomas W Huntington San Francisco president of the American Surgical Association, Dr Victor G Heiser of the United States Public Health Service and Nicholas F Brady of the Central Trust Company New York Professor Chandler R. Post of Harvard University an authority on Italy, has been detailed to assist the commission

Physicians Recommended for Commission in the Medical Reserve Corps

During the week ending July 28, 577 physicians were recommended for commission in the Medical Reserve Corps the proportion being 13 majors 96 captains and 468 lieutenants

During the week ending August 4 714 physicians were recommended for commission in the Medical Reserve Corps, the proportion being 4 majors, 78 captains 632 lieutenants

The Cantonment Hospitals

At each of the cantonments for the new national army hospital provision will be made for 3 per cent. of the troops At each cantonment a complete hospital containing at least 1 000 beds will be constructed with a space reserved for extensions Sixty acres have been allotted to each hospital and its auxiliary buildings The hospitals will cost approximately $500 000 each. One type is being used in all the hospital construction work done by the army The buildings are 24 feet wide, the length varying to meet the special needs The wards are usually 157 feet long which is the size needed for 32 beds There will be a diet kitchen for each ward a porch at one side and end of each ward and a corridor connecting with the buildings on either side which will be covered in the case of the northern cantonments About seventy buildings will be comprised in each cantonment hospital Each hospital will have a well equipped laboratory for bacteriologic and pathologic work. There will also be an infirmary for each regiment.

Hospital Provisions for the Army

The provisions for caring for the health of the soldiers now being made by the Medical Department of the Army include the construction of thirty-two hospitals at National Guard and National Army camps, the enlargement of some thirty hospitals used in connection with officers' training camps, the taking over or the construction of at least two general hospitals at ports increasing the size of two general hospitals behind these and the building or taking over of general hospitals to be used for special treatment work A further step will be the establishment of so-called "reconstruction hospitals" In these artificial limbs will be made, repair surgery done, artificial limbs fitted to patients and the reeducation of cripples begun It is aimed to have hospital provisions for 5 per cent. of the enlisted force by October 1, and then to proceed to extend that to 10 per cent. Facilities for 20 per cent. of the American expeditionary forces are to be provided abroad.

Baggage for Reserve Officers Ordered to Duty

Inquiries have been received as to whether an officer of the Medical Reserve Corps ordered to active duty should take with him his own instruments and books This depends largely on the type of service to which the physician is ordered An officer reporting for field service should take with him the prescribed field equipment and nothing more Under present circumstances most reserve officers will be ordered to one of the following duties to training camps for medical officers to the cantonments for the National Army and National Guard or for service abroad On any of these services the officer should take with him only such books as he feels certain will be of great utility to him that is to say books on military subjects Instruments and medical supplies are furnished A good rule is to take along only as much personal baggage as can be accommodated in the regular army trunk or locker

Medical Reserve Corps Men on Active Duty

At the present time there are a little over 3000 men at the various training camps In addition a number who have been at these training camps have been assigned to other active duties for instance to base hospitals and other duties in France to foreign service in our dependencies to army posts in this country to special recruiting work and to mobilization of the National Guard We understand that 1000 more men are to be assigned to various training camps for training by August 15 It is quite evident that when the National Army is mobilized the medical corps for that Army will be ample in number and equipped for its work

Schools of Instruction in Military Roentgenology

At the direction of Surgeon General Gorgas a conference of Military Roentgenologists was held at Cornell Medical College New York City June 11-25 1917 The Surgeon-General ordered this conference with a view toward standardizing Roentgen ray apparatus and arranging courses of study in military roentgenology

Major Arthur C Christie from the Surgeon General's office and Major P W Huntington from the Army Medical School represented the Army The instructors who will have charge of the several schools in various parts of the country were present with members of the Committee on Preparedness of the American Roentgen Ray Society

Schools of instruction have been established in Boston Major A W George M R C., New York City, Majors L G Cole and L T LeWald M R C Philadelphia Major W F Manges M R C, Baltimore, Major F H Baetjer M R C. Richmond Major A L Gray, M R C., Pittsburgh, Major G C Johnston, Chicago Capt F S Blaine M R C Kansas City Capt E H Skinner, M R C, and Los Angeles Capt W B Bowman M R C

The government has established these schools for the purpose of giving instruction in Roentgen-ray work to selected officers in the Medical Reserve Corps They will be ordered to active duty on pay according to rank for the period of instruction The length of the course will be about three months, but officers who have had considerable experience in Roentgen-ray work or those who become proficient before this time will be certified to the Surgeon-General as soon as they become qualified Those who show lack of adaptation or application will be relieved of this detail and assigned to other duties or discharged by order of the Surgeon-General

Physicians desiring to take this work will proceed as follows (1) Write a letter to the nearest school immediately indicating your preference for this Roentgen-ray course stating your experience in the work (2) Make application for a commission in the Medical Reserve Corps, through the nearest medical recruiting officer (3) Write a letter to the Surgeon-General attention Major Christie asking to be placed on this Roentgen-ray instruction detail at the nearest school and attach this letter to the papers which are sent in at the time you take your examination for the commission (4) When you have received your commission, accept it and write a letter to the nearest school, stating that you have received and accepted your commission and are ready for active duty

The government is going to the expense of training these selected officers as military roentgenologists and will, therefore, be desirous of using them in this capacity in the field, base hospital or other detail, to the greatest extent possible

Enlistment in Red Cross Ambulance Service Not to Exempt From Draft

The Provost-Marshal General has ruled that service in Red Cross ambulance companies is not military service within the meaning of the law and is not a valid claim for exemption or discharge.

Sanitation Around the New Cantonments

The American Red Cross has appropriated $800,000 to aid in controlling sanitary conditions in the civilian areas surrounding army cantonments This work will be done under the instruction of a newly created Bureau of Sanitary Service headed by Dr W H Frost of the Public Health Service

To Increase Pennsylvania Base Hospital

Additional nurses and enlisted men are needed for the base hospital unit of the Pennsylvania Hospital, now in France This unit, at the request of the British government, was sent to France to take over a British base hospital of 2,000 beds The unit was raised to care for a hospital of 500 beds, so has been doing increased work, and Major Harte has sent a request to the Surgeon-General that the Pennsylvania Hospital send more men and nurses The following physicians have been selected to go with the unit Drs J Paul Austin, Germantown, Richard C Beebe, Lewes, Del , William L Cunningham, Philadelphia, Michael M Nolan, Birmingham, Ala , George W Outerbridge, Philadelphia, I B Roberts, Llanerch, William Whitaker and H B Wilmer, Germantown, Hersey E Orndoff, St Louis

Virginia Base Hospital Organized

Base Hospital Unit No 41 is being organized at the University of Virginia, University, Va. Dr William H Goodwin, associate professor of surgery, is to be the director Fifty of the sixty-five nurses required have enrolled, and about all of the enlisted personnel have been secured. The members of the staff, thus far, are as follows Dr Lomas Gwathmey, Norfolk, Dr Minor Carson Lile, New York City, Dr Kyle B Steele, Richfield Springs, N Y , Dr Leroy W Hyde University, Dr Joseph S Hume, Norfolk, Dr John W Burke, Washington, D C , Dr Robert E Pound, New York City, Dr Gordon L Todd, Princeton, W Va , Dr Herbert F Jackson, New York City, Dr Hugh P Nelson, Charlottesville, Dr Dan H Witt, New York City, Dr Edward C Ashby, Greensboro, N C , Dr John D Barnwell, New York City, Dr Claude C Caylor, Washington, D C , Dr Lucius G Gage, University, Dr George C. Parry (dentist), Philadelphia, Dr Edward B Broocks, Charlottesville, Dr Walter E Miller, Norfolk, and Dr George Y Gillispie, Bryn Mawr, Pa

University of Pennsylvania Hospital Unit Completed

Maj John B Carnett, Philadelphia, medical director of Base Hospital Unit No 20, announced that his personnel is completed and his equipment ready Major Eldridge L Eliason is chief of the surgical section and Major George M Piersol, chief of the medical section The other members of the staff are as follows Captains Damon B Pfeiffer, surgeon, De Forest P Willard, orthopedic surgeon, B Franklin Baer, Jr, ophthalmologist, Floyd E Keene, surgeon, James H Austin, physician, John H Musser, Jr, physician, Jay D Zulick, chief of Roentgen ray and laboratory section, Fred H Leavitt, neurologist, F Thomson Edwards, registrar

The following on the staff are first lieutenants Seth A Brumm, laryngologist, Alexander Randall, genito-urinary surgeon, Edmund B Piper, surgeon, William Bates, surgeon, Benjamin M McIntire, physician, Richard D Hopkinson, physician, Jenkintown, R. N Goldsmith, physician, Scranton, Edward L Clemens, physician, Philip F Williams, pathologist, Alfred C. Woods, bacteriologist, J D Owens, dental surgeon, Camden, F P K. Barker, dental surgeon

First Impressions of a Base Hospital

Major Frederick A. Besley, M R C, director of Base Hospital No 12, U S Army, now in France, writes We have now been at this hospital a month and I am taking this opportunity to write some of my early impressions The hospital is made up partly of huts and partly of tents and acts as a general hospital occupying the place between the casualty clearing station where most of the urgent and early operations are done, and the permanent base hospitals in England In a word, it is a kind of segregating station The patients whose conditions are serious are cared for as well as possible and then sent on to England The minor cases are kept here until they recover and they are then sent to large convalescent camps or to their base details

The British personnel has gradually left us until this morning our good Commanding British Officer, Colonel ———, took his departure and Major Collins is in complete control of the unit. Unfortunately, our force of nurses and the number of enlisted men is quite inadequate to cope with so large a hospital We had expected to find a hospital of 850 beds and much to our surprise it is capable of caring for 2,000 patients, and our average number is from 1,200 to 1,300 During the last week we received a convoy practically every day of from 150 to 200 new patients Evacuations are taking place every day Each individual case requires the exercise of medical or surgical judgment, so the task is not a small one

We are one of five similar hospitals in this immediate vicinity, and there are six or seven other hospitals about four miles from us Dr Cabot's Harvard unit, under British control, adjoins us, and adjoining him, about one-fourth of a mile away, is Major Patterson of the regular army with Major Harvey Cushing and the new Harvard unit under American control

We cannot commend or praise the attitude of the English medical officers too much They have all been most courteous and friendly in all their relations We were met before we left the ship and have been shown every attention since that time Major Collins and I are receiving the most loyal and willing support from every member of the unit, and up to date we have not encountered the slightest friction The citizens of Chicago should be proud of the spirit which is being shown by these fine boys who make up our enlisted force They work at the most arduous menial and often times disagreeable tasks with a cheerfulness which is little short of wonderful

Psychiatrists and Neurologists Instructed on Examination of Troops

The Committee on Clinical Methods and Standardization of Examination and Reports, a subcommittee of the Mental Hygiene War Work Committee of the National Committee on Mental Hygiene, has submitted, at the request of the Surgeon-General, an outline to be followed in determining which men should be excluded from military service on account of mental and nervous diseases This committee is composed of the following physicians August Hoch, Ward's Island, New York, Adolf Meyer, Johns Hopkins University, Baltimore, Thomas W Salmon, New York, Pearce Bailey, New York, E E Southard, Boston, Albert M Barrett, Ann Arbor, Mich., William A White, Washington, D C , Walter E. Fernald, Waverly, Mass , Joseph Collins, New York, T H Weisenburg, Philadelphia, and Robert M Yerkes, Cambridge, Mass

Because of its practical character, this outline is given herewith in full

I NERVOUS DISEASES

(*a*) *On the Basis of Disease*

1 Tabes (Look for Argyll Robertson pupils, absent knee and ankle jerks, ataxia of station and gait)
2 Multiple sclerosis. (Look for absent abdominal reflexes, nystagmus, intention tremor)
3 Progressive muscular atrophy and syringomyelia (Look for fibrillary tremors, atrophy in the small muscles of the hand and of the muscles of the shoulder girdle, scars on forearm and fingers caused by burning, deformities of feet)
4 Epilepsy (Look for deep scars on tongue, face and head voice Where diagnosis depends only upon history of epileptic attacks given by the patient, the latter should be asked to give the address of the physician who has treated him This history must then be verified by a letter from the physician)
5 Hyperthyroidism (Look for persistent tachycardia, exophthalmos tremor, enlarged thyroid)

(*b*) On the Basis of Symptoms or Combination of Symptoms *or History*

1 Unequal pupils, irregular pupils, Argyll Robertson pupils
2 Nystagmus (in one not an albino), absent abdominal reflexes, intention tremor
3 Absent knee jerks associated with some *one other* organic neurologic symptom
4 Exaggerated tendon jerks, Babinski
5 Disorders of station or gait
6 Disorders of speech (on test phrases), facial tremor, one other organic neurologic symptom (Stammering and stuttering per se is not significant of an organic neurologic condition Stammerers and stutterers are rejected by regulations See form No 94777)

7 History of epilepsy (Ask the recruit to give the address of the physician who has attended him this information to be verified by letter)

II MENTAL DISEASES

(a) On the Basis of Disease
1 General paralysis (Look for Argyll Robertson pupils speech defect consisting of distortion of words writing defect consisting of distortion of words facial tremor in showing the teeth euphoria and marked discrepancies in giving facts of life)
2 Dementia praecox (Look for indifference ideas of reference feelings of the mind being tampered with [illegible] ideas of hypnotism] auditory hallucination bodily hallucinations such as electrical sensations or sexual sensation meaningless smile in general inappropriate emotional reactions lack of connectedness in conversation)
3 Manic depressive insanity (Look for mild depressions with or without feeling of inadequacy or mild manic states with exhilaration talkativeness and overactivity)
(b) On the Basis of Symptoms or Combinations of Symptoms or History
1 History of previous mental illness (Ask the recruit to state when and where he had such illness, in what hospital he was observed or treated or by what physician he was attended this information to be verified by letter)

III. PSYCHONEUROSES AND PSYCHOPATHIC CHARACTERS

Look for phobias, morbid doubts and fears anxiety attacks fatiguability hypochondriasis compulsions homosexuality, grotesque lying vagabondage.

IV CHRONIC ALCOHOLISM

Look for suffused eyes prominent superficial blood vessels of the nose and cheek flabby bloated reddened face purplish discoloration of the mucous membrane of the pharynx and of the soft palate also a brown complexion and clammy skin muscular tremor in the protruded tongue and extended fingers (noticeable also in lack of control when the applicant attempts to sign his name), emotionalism prevarication suspicion auditory or visual hallucinations paranoid ideas

V MENTAL DEFICIENCY

Look for defect in general information with reference to native environment ability to learn to reason to calculate to plan to construct to compare weights sizes etc defect in judgment foresight language output of effort suggestibility stigmata of degeneration muscular incoordination (consult psychometric findings)

VI DRUG ADDICTION

Look for pallor dryness of skin flippancy mild exhilaration (if under the influence) cowardly cringing attitude restlessness anxiety (if without the drug) distortion of the alae nasi contracted pupils (morphin) or dilated pupils (cocain) dirty deposit at junction of gums and teeth bluish and whitish needle scars on thighs and arms

Orders to Officers of the Medical Corps

Major Clarence Le R. Cole M C, to Fort Sam Houston, Texas for duty in charge of the department laboratory S D

Capt. James E Baylis M C from command of Ambulance Co No 5 Camp Funston Leon Springs Texas and assigned to command Field Hospital No 5 same station vice Capt. George W Cook, M C relieved.

First Lieut Charles M. O Connor Jr M C to Honolulu for duty

Capt. Glenn I Jones M C is designated as cantonment surgeon at the N A. Cantonment Camp Devens Ayer Mass

Lieut.-Col Jere Black Clayton M C to Washington for examination for promotion

Capt. R. Reynolds M C. to Pittsburgh Pa, for duty in command of Base Hospital No 27

Capt. A. P Clark M C assigned to Fourth Reserve Engineers permanently

Capt. H. H. Sharpe M C. from Fort Davis Alaska to Chicago

Orders to Officers of Medical Reserve Corps

ALABAMA

To Fort Sam Houston Texas to report to commanding general Southern Dept., for duty Lieut. R. C Speir, Furman

CALIFORNIA

To Chicago for duty Capt Sidney E D Pinniger Tracy

To Fort Des Moines Iowa for duty Lieuts. L. Stovall and W A Tarleton Los Angeles

To Tecate, Calif for duty Lieut. Samuel C Leonhardt Oakville

To report in person to commanding general Western Dept. for duty, Capt. Alex. Patterson and Lieut. C E Mordoff San Francisco

Honorably discharged Capt. John M. Armstrong Alhambra.

CONNECTICUT

To Camp Kelly South San Antonio for duty Lieut. Michael J Sheahan Derby

DISTRICT OF COLUMBIA

To Walter Reed General Hospital Takoma Park D C., for duty Lieut. Earle G Breeding Washington.

To report in person to Surgeon General of Army for duty in office of the attending surgeon Capt. H P Parker Washington D C

FLORIDA

To Chickamauga Park Ga, for duty Lieut Julian F Gammon Jacksonville

GEORGIA

To South San Antonio to accompany two aero squadrons to Mount Clemens Mich Lieut Elmer L [illegible] Pavo

ILLINOIS

To Belleville Ill as post surgeon Lieut Harry L Logan Salem

To duty in connection with examination for tuberculosis of National Guard at their armories in Chicago Lieut S M [illegible] Chicago

Resignation of Lieut J J Marshall Chicago accepted

INDIANA

Honorably discharged Capt Blanchard B Pettijohn Indianapolis

KENTUCKY

To Fort Sam Houston Texas to report to commanding general Southern Dept for duty Lieut J A Campbell Carlisle

To Paducah Ky for duty in connection with examination of applicants for appointment in the Medical Reserve Corps of the Army Lieut Frederick D Cartwright Bowling Green

LOUISIANA

To Fort Sam Houston Texas to report to commanding general Southern Dept for duty Lieut O J Gee Shreveport

MAINE

To Boston in connection with the examination for tuberculosis of National Guard at armories Capt Nelson L [illegible] Houlton

To El Paso Texas to make psychiatric and neurologic examinations, Capt Henry M Swift Portland

MARYLAND

To Annapolis Junction Md as sanitary officer of cantonment of N A Lieut Frank N H [illegible] Hagerstown

To Fort Oglethorpe Lieut W R McKenzie Baltimore

From further active duty Lieut Monroe T [illegible] Baltimore

MASSACHUSETTS

To Boston for duty Lieut Harry J Cahill Worcester

To Fort Leavenworth Disciplinary Barracks Lieut J M Chambers [illegible]

To Fort Logan H Roots Ark Major Fred B Lund Boston

To his home Capt Harvey A Kelly Winthrop

MICHIGAN

To Detroit and as the commandant of Base Hospital No 36 and enlist and muster in additional personnel Major Burt R Shurly Detroit

MINNESOTA

To Fort Leavenworth for duty Lieut L P [illegible] Kimball Prairie

MISSOURI

To Fort Des Moines Iowa Lieut Fenton A Goodson St Joseph

To Fort Sam Houston Lieut G L Kerley Kansas City

NEBRASKA

To Fort Oglethorpe Capt Frank M Conlin Omaha

NEVADA

To Fort Douglas for duty Capt E D Giroux Winnemucca

NEW JERSEY

To Fort Leavenworth Lieut F H Thorne Greystone Park

To Fort Oglethorpe Lieut Floyd C Shupart, Orange

NEW YORK

To Fort Terry N Y for duty with Provisional C A Lieut Edgar W Peckwith, Bronxville

To Gettysburg National Park Pa for making psychiatric and neurologic examinations Lieut Sanger Brown White Plains

To New York for duty Capt Bernard S Oppenheimer New York

To Cornell Medical College, Lieut Samuel Brown New York

To Rockefeller Institute of Medical Research New York Capt Francis R Lyman, Hastings upon Hudson Lieuts C G Burdick H E Meleney and A M Wright New York

To duty in connection with examination for tuberculosis of National Guard at their armories in New York and Brooklyn Capt W J Hammer New York

To report in person to commanding general Eastern Department for duty Lieut David Bovaird New York

To report in person to commanding general Eastern Department for duty in Transport Service Lieut E J Davin, New York

To Syracuse N Y for duty Capt G B Campbell Utica

Honorably discharged Capt J B Gere, New York

NORTH CAROLINA

To Fort Oglethorpe Capt Charles S Lawrence, Winston Salem, Lieuts W E Brackett, Caroleen and John T Benbow, East Bend

OHIO

To Fairfield Ohio Flying School, Aviation Section for duty as post surgeon Capt Courtney P Grover National Military Home

To Fort Sam Houston Major Frank E Bunts, Cleveland

OKLAHOMA

To Fort Riley Lieut Ross D Long Oklahoma City

To Fort Sam Houston, Lieut. S R Evans, Stilwell To report to commanding general Southern Dept for duty, Capt R L Kurtz, Nowata Lieuts J E Parramore Antlers B T Bittings L L. Bunker Enid W W Rucks, Guthrie H DeW Shankle, Hastings, C M Ming Okmulgee S D Bevill, Poteau, and F C Myers, Broken Arrow

PENNSYLVANIA

To Allentown Pa. for duty, Lieut. C. J Cavanagh, Philadelphia

To Army Medical School Washington, D C, as professor of ophthalmology, Major William T Davis Dunmore

To Fort Leavenworth, Lieut G R Moffitt, Harrisburg

To Fort Sam Houston, Texas to report to commanding general, Southern Department, for duty, Lieuts W C Browne, Burnside, and F L, Patterson, Imperial

To Des Moines, Iowa, for duty, Lieut L L Rodgers, Kingston

To Monmouth Park, N J, for duty, Major W P Barndollar, Pittsburgh

To Philadelphia, Lieut. James W Levering, Philadelphia

Honorably discharged, Major Melvin M Franklin, Philadelphia

Retired, Lieut Thomas W Moran, Latrobe

TENNESSEE

To Allentown Pa, Capt W A Brewer, Memphis

To Des Moines, Iowa, for duty, Lieut J L Leach, Nashville

TEXAS

To Fort Douglas, for duty, Lieut. C T Smith, Canton

To Fort Sam Houston Texas, to report to commanding general, Southern Department, for duty, Capts C M Hendricks, El Paso, T L Kennedy, J S Jones, Galveston, J T Moore, Houston, M Duggan, F L Paschal, San Antonio, Lieuts C H Brownlee, Burnet, G S Woods, Devine, F A Haggard, Fort Worth, E R. Townsend, Fredericksburg, E A. Frechet, Frisco, M D Levy, H L McNeil, Galveston, J J Handley, Greenville, R M Fancher, J C Michael, M V Moth, J F Gamble, Houston, R K Lowry, Hubbard, R A Gordon, Lorena, J F McDonald, Meridian, T R Burnett, Mission, L S Johnson, Richmond, W C Hirzel, C B Kitowski, W H Cade, San Antonio, Arthur W Bergfeld, Seguin, W H Lyon, Tracy, L D Parnell, Waxahachie, L Frazier, Westville, R H Coleman, Whitesboro, and G Graham, Oak Forest

UTAH

To Fort Douglas, Lieuts Arthur A Bird, Magna, and Lorin F Rich, Ogden

WASHINGTON

To Seattle, Wash, to conduct the preliminary examinations of applicants for appointment in the Medical Corps of the Army, Capt. Ira C Brown, Seattle

WEST VIRGINIA

To Des Moines, Iowa, for duty, Lieut. C H Laws, Elkin

To Rockefeller Institute, New York, for duty, Lieut John C McCoy, Queens

WISCONSIN

To Fort Sam Houston, to duty with *two aero squadrons and to* accompany *these troops* to Fairfield, Ohio, Lieut Will G Merrill, Grand Rapids

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest, such as relate to society activities new hospitals, education, public health, etc)

CALIFORNIA

Physicians Win Suit—Drs N J Brown and N N Brown, Bakersfield, have been awarded $5,000 in the suit which they brought against the estate of the late E J Boust for professional services rendered the deceased for one year, when he was injured in an automobile accident

Municipal Appointments—Dr Shelby P Strange, surgeon of the San Francisco Emergency Service, and Dr J Montague Rose, resident physician of the San Francisco Tuberculosis Hospital, have resigned——Dr Solomon Bauch has been appointed resident physician of the municipal tuberculosis hospital, succeeding Dr Rose

Personal—Major Philip S Chancellor, M R C, U S Army, Santa Barbara, has requested that he be demoted to captain, in order that he may go to France with the San Francisco City and County Hospital Unit——Dr Saton Pope, San Francisco, has succeeded Dr Alanson Weeks as chief surgeon of the San Francisco Emergency Hospital——Dr D W Zirker, Merced, has resigned as county physician of Merced to accept a position in the Medical Reserve Corps

FLORIDA

Eclectic Examiners Appointed—Governor Catts has appointed the following board of eclectic medical examiners Dr George A. Munch, Tampa, Dr John A McDonald, Century, and Dr Jerome D Stuart, Miami

New State Board ***Officers***—The recently appointed state board of health met at Tallahasse and organized by electing Mr Charles T Frecker, president Dr William H Cox, Brooksville, was elected state health officer, succeeding Dr Joseph E Taylor, Live Oak, Dr Hiram Byrd, Princeton, was appointed scientific inspector, Dr William R Warren was appointed to succeed Dr Joseph Y Porter at Key West and Dr F Lothair Tatum, De Funiak Springs, was appointed to succeed Dr Clinton W D'Alemberte, Pensacola, as custodian and supervisor of the state bacteriologic laboratories and Isolation Hospital, Pensacola, and to be in charge of all matters pertaining to the public health in western Florida

Personal—Lieut-Col Joseph Y Porter, Jacksonville (retired), has been placed on the active list, and assigned to duty in the office of department surgeon, Southeastern Department, Charleston, S C The Rotary Club of Key West at its meeting, June 20, adopted resolutions laudatory to Colonel Porter——Dr Edward G Birge has resigned as director of the state bacteriologic laboratory at Jacksonville, and has been succeeded by Dr Burdett L. Arms, Montgomery chief bacteriologist of the Alabama State Board of Health——Dr Iva C Youmans, Melrose, has resigned as bacteriologist in the state laboratory at Miami, and will enter private practice at Jacksonville She has been succeeded by Dr Harold H Fox, Tallahassee——Dr Herbert R Mills, Tampa, bacteriologist in charge of the state board of health laboratory, has resigned, and has been succeeded by Dr Claude P Fryer, New Orleans

ILLINOIS

Examining Board Appointed—A board to exercise the examining functions under the administrative code, formerly performed by the state board, has been appointed as follows For medical practitioners, Dr L C Taylor, Springfield, Dr Carl E. Black, Jacksonville, and Drs John H Robinson G M Cushing and William L. Noble, Chicago

Menard County Wins Red Cross Flag—Menard County, of which *Petersburg* is the county seat, has been announced as the winner of the Red Cross flag, made by the wife of the governor, to be awarded to the county obtaining the greatest proportional *membership* for the American Red Cross *Menard County*, with a *population* of 12,796, has enrolled 3,780 as *members*

Personal.—Dr Charles F Read, formerly superintendent of the Watertown State Hospital, has been appointed superintendent of the Chicago State Hospital, Dunning, to succeed Dr George Leininger——Dr Edward S Godfrey, Jr, has resigned as director of the bureau of communicable diseases of the state board of health, to accept a position in the sanitary department of the New York State Department of Health He has been assigned to the district *comprising* Albany and Rensselaer counties

Chicago

Personal—Dr Arthur Lederer, formerly of the Sanitary District of Chicago, has been appointed director of the State Hygienic Laboratory of West Virginia, Morgantown——Dr Walter H Watterson, Oak Forest, has been appointed medical superintendent of the Municipal Tuberculosis Sanatorium——Dr D S Hager has completed *the annual reexamination* for sight, color-sense and heart of the trainmen of the Santa Fe System, on the eastern and western *lines*

MARYLAND

Fort McHenry for Base Hospital—The federal government has reclaimed Fort McHenry, which was loaned *three years* ago to Baltimore for a park, and will use it as a base hospital for the army The old fort buildings will be renovated and made available for this purpose, and the new immigration station buildings now nearing *completion* will *also* be used in the plans for the establishment of a large base hospital in Baltimore The new *buildings* cost $500 000, and include a modern equipped hospital *building* for the treatment of sick immigrants landing at the *port* of Baltimore This now, however, will be *used solely* for the army

Personal—Dr Alexander D McConachie, Baltimore, has been operated on for appendicitis at the Church Home and Infirmary His condition is reported *as favorable*——Dr William Kelso White, Baltimore, who is connected with the Maryland University Hospital Unit, has been commissioned captain in the Medical Officers Reserve Corps——Dr C Frank Jones, *one of* the health wardens of Baltimore, has been named by Commissioner of Health John D Blake as acting head of the division of communicable diseases with the rank and pay of an *assistant commissioner* Dr Jones takes the *place of* Dr John F Hogan, who temporarily becomes first assistant to Dr Blake—Dr Henry C Houck has been *appointed* a *substitute* health warden for Baltimore

MICHIGAN

Sanatorium Proceedings—The Detroit Board of Health, July 23 voted to erect a municipal tuberculosis sanatorium with 605 beds, at an approximate cost of $975,000——At a conference, held in Powers July 19 the county supervisor discussed the question of a joint tuberculosis sanatorium for Delta Dickinson and Menominee counties

Personal—Dr Hugo A. Freund, recently appointed health commissioner of Detroit, was elected president of the board of health July 23 succeeding Lieut-Col Angus McLean called to the front to be director of the Harper Base Hospital Unit No 17, and Dr Francis Duffield a newly appointed health commissioner was appointed vice president to take the place of Major I Walter Vaughan, who has also been called to the colors——Dr Forrest R Ostrander, Detroit has been appointed full time health officer of Lansing and will take up his duties August 15 when the resignation of Dr Lynch becomes effective——Dr Charles B G de Nancrede professor of surgery in the University of Michigan has resigned

NEW YORK

State Food Bill Framed—A bill after the best features of the national and the Whitman food control measures has been framed by Elon R Brown and introduced into the legislature. The governor does not favor giving the proposed State Food Commission of three members power to commandeer food products except those held in storage by food speculators No attempt will be made to seize the crops of producers

State Society Meeting—The medical men of Albany have named the committee on arrangements for the meeting of the Medical Society of the State of New York to be held in Albany, May 21 to 24 1918. Dr Arthur J Bedell has been appointed chairman of the committee and will be assisted by Drs Frederick C. Conway, Thomas W Jenkins Howard I Lomax, Andrew MacFarlane Leo H Neuman, James F Rooney and James N Vander Veer——Dr James F Rooney, Albany, has been appointed chairman of the committee to revise the workman's compensation law

Civil Service Positions—The Civil Service Commission of New York State announces the following positions in the state department of health diagnostician and epidemiologist, salary $3,500, open to men and women and limited to physicians, medical expert on tuberculosis, salary $3,200, open to men and women, and limited to physicians, assistant to the deputy commissioner, salary $3,200 open to men and women, and limited to physicians, and bacteriologist, salary $2,000 open to men and women minimum age 25 years, preferred ages 30 to 40 years, a degree in medicine or an equivalent education in a college maintaining a standard satisfactory to the commission Applications must be received before August 29

Mobilization of County Tuberculosis Hospitals—With a view to assisting in carrying out all the provisions of the recently enacted law requiring the construction of tuberculosis hospitals in counties of 35000 population or more, Dr Hermann M Biggs state commissioner of health, has appointed two committees to take charge of the tuberculosis situation in this state. The first committee headed by John A. Smith, will have general supervision of the sites, plans, construction and equipment of tuberculosis hospitals, and will carry on the antituberculosis campaign in the state The second committee will act as an advisory board On the first committee are John O R. Eschel, E S McSweeney and Matthias Nicholl, Jr., deputy commissioner of health, as a member, ex-officio, as well as engineering and construction experts The advisory committee consists of Drs Albert H Garvin, Raybrock, John S Billings, New York, Charles Stover, Amsterdam, Horace J Howk, Wilton, N Y, and Lawrason Brown, Saranac Lake.

New York City

Mabon's Estate—The estate of the late Dr William Mabon, superintendent of the Manhattan State Hospital who died, February 9, has been appraised at $39,335, which, by the terms of his will, is to be distributed in equal shares between his wife and his two daughters

Auxiliary Medical Corps for Police Surgeons—A police surgeon auxiliary medical corps has been organized in Greater New York with a membership of 300 It is under the command of Dr Edward T Higgins, chief surgeon of the police department. Dr Walter A. Sherwood, Brooklyn, is chief of the local corps from Brooklyn and Dr William T Seon of Richmond Hill chief of the local corps from Queens

Examination for Chief Medical Examiner—The Municipal Civil Service Commission announces an examination for the position of chief medical examiner of New York The position pays $7,500 a year, and is to take the place of the coroner who in accordance with legislation passed some time ago will go out of office Jan 1 1918 Physicians more than 30 years of age and having had ten years' experience in a pathologic laboratory have until August 14 to file applications

Personal—John F Harris has become chairman of the New York County Chapter of the American Red Cross and will serve without pay as did his predecessor Harvey D Gibson——Dr Linsly R Williams formerly Deputy Commissioner of Health of New York State has gone to Washington to take an assignment in the office of the Surgeon General——Dr Mortimer M Raynor psychiatrist of the department of correction has been commissioned captain M C U S R, and assigned to duty with a staff of psychiatrists

PENNSYLVANIA

Carlisle Physicians Raise Fees—High cost of drugs and supplies and increased personal expenses have determined the physicians of Carlisle to raise fees 25 per cent Six members of the local medical organization are officers in the Medical Reserve Corps

Governor Approves Appropriations—State appropriations for a total of $81,223,636.84 for the next two years were approved by Governor Brumbaugh in his final action on appropriation bills July 27 The $75000 appropriation for the Medico Chirurgical Hospital in Philadelphia was disallowed entirely as the institution has been taken over by the American Red Cross

State Medical Board Condemns Draft of Medical Students—August 2 the State Board of Medical Education and Licensure passed resolutions demanding that the federal authorities recall the ruling that medical students and young men about to enter medical colleges be included in the draft The board contends that such ruling will cut off the future supply of doctors It is especially emphatic in its denunciation of the view that field service will qualify medical students for the practice of their profession

National Guard Appointments—The following appointments in the medical corps have recently been announced Major John J Moore, Pottsville assigned to the First Engineers Capt Clifford H Arnold, Chester to the Sixth Infantry, Lieuts Charles I Trullinger, Harrisburg Eighth Infantry Charles L. Reed and Carl J Cubbison Wilkinsburg to Field Hospital No 4, and Lieuts Thomas H Snowwhite Walter J Lace and Charles C Moore to Ambulance Company No 4——Major Gregg A Dillinger has been assigned to duty with the headquarters division

Philadelphia

National Guard Appointments—Dr Arthur J Logie has been commissioned lieutenant and assigned to duty with Field Hospital No 3——Major Fred O Waage has been placed on the retired list

Women Physicians Wish to Aid—A petition containing the signatures of 100 women doctors has been sent to President Wilson protesting against their exclusion from the war medical forces that are being sent to France

Ambulances for Jefferson Unit—August 4 Base Hospital No 38, organized by the Jefferson Medical College was presented with four flags by the East Germantown Improvement Association, an ambulance by the Logan Improvement Association, and an ambulance by the Rapid Transit Company

Personal—Dr Harriet L. Hartley has been appointed chief of the division of child hygiene, department of health, succeeding Dr Henry H Doan, deceased——Dr Gustave A Van Lennep has been selected by the trustees of the Hahnemann Hospital as director of the new base hospital——Dr H P Leopold has been chosen as the head of the surgical section and Dr William Rendell Williams as the head of the medical section

Warns Army Camp of Smallpox—Urging that unreported cases of smallpox be searched for at Wrightstown and stamped out in order to prevent an epidemic when mobilization for the new army begins there, Dr A A Cairns, chief medical inspector of the board of health of this city, has written Dr Jacob C. Price commissioner of health in New Jersey A negro who was employed at Wrightstown until

July 5 was discovered to have smallpox July 26, and had been ill since July 17

TENNESSEE

Hospital Opening Delayed—The opening of the Riverside Hospital, Knoxville, which was to have taken place, July 1, was delayed two months on account of the difficulty of obtaining supplies and equipment

Personal—Dr William M McCabe, superintendent and surgeon of the Nashville City Hospital since 1890, has resigned, and expects to go to France with the Vanderbilt Hospital Unit He has been succeeded by Dr William F Fessey——Dr George F Aycock, Nashville, superintendent of the Davidson County Tuberculosis Sanatorium, has been ordered to report to the Army Medical School, Washington, D C——Dr Edward E Reisman has been elected chief of the staff of the Baroness Erlanger Hospital, Chattanooga, succeeding Dr Jose M Selden, resigned——Dr Benjamin L Simmons, Granville, has been appointed a member of the state board of medical examiners, to succeed himself

New Officers—At the twenty-sixth annual meeting of the West Tennessee Medical and Surgical Association, held in Martin, May 24-25, Jackson was selected as the next place of meeting The following officers were elected president, Dr William F Clary, Memphis, vice presidents, Drs Tazwell B Wingo, Martin, and Christopher H Johnston, Lexington, and secretary-treasurer, Dr Isaac A McSwain, Paris (reelected)——The East Tennessee Medical Association, at its annual meeting held in Dayton, elected the following officers president, Dr J Morgan Clack, Rockwood, vice presidents, Drs William P McDonald, Spring City, and Edward T West, Johnson City, and secretary-treasurer, Dr William N Lynn, Knoxville The semiannual autumn meeting of the association will be held in Johnson City, and the annual meeting in Athens

Report on Memphis Hospital—A committee of the Memphis and Shelby County Medical Society, consisting of Drs William Britt Burns, John C Ayers, Alfred B DeLoach and Newman Taylor, which was appointed to examine into conditions at the Emergency Hospital, requested by the budget committee of the county court, has recommended that Shelby County build a pellagra hospital on the grounds of the Home for the Aged and Infirm, that the present pellagra hospital be remodeled and used for an isolation hospital, that a duly qualified physician be secured as superintendent of the emergency hospital, and that a committee be appointed to cooperate with the county commissioners and county court in dealing with the pellagra and smallpox situations The committee also condemned the sanitary and other arrangements at the present emergency hospital

UTAH

Scarlet Fever—Mayor Barnes of Kaysville, July 10, issued an order forbidding all public assemblies until further notice, on account of an epidemic of scarlet fever

Pledge of Utah County Medical Society—Members of the Utah County Medical Society have pledged to pay into the society's treasury an amount sufficient to give each of its members in the federal medical services $100 each month, for a period of three years, provided the member serves that long, and in case of death, while on duty, to pay his estate $100 a month for one year

Personal—Dr Reinhold Kanzler has been appointed city physician of Ogden——Dr Walter E Whalen has resigned to enter the Army Medical Corps——Lieut Williard Christopherson, M C, Utah N G, Salt Lake City, has been promoted to major, medical corps——Dr John S Gordon, Ogden, who sustained a fracture of the hip recently in an automobile accident in Los Angeles, is making progress toward recovery——Dr Murray R Stewart, Salt Lake City, has been appointed a member of the staff of Salt Lake County Hospital

VIRGINIA

Tuberculosis Stations Opened—Twelve stations have been opened in Richmond by the Richmond Anti-Tuberculosis Association for the free examination for tuberculosis Two physicians and two nurses are on duty at each station

Southwestern Physicians Elect—The annual meeting of the Southwestern Virginia Medical Society was held in Pulaski, June 27-28, and the following officers were elected president, Dr Wilson R Cushing, Dublin, vice presidents, Drs Zeb V Sherrill, Marion, and John W Preston, Roanoke, and secretary-treasurer, Dr Alfred B Greiner, Rural Retreat

Personal—Dr Charles R Anderson, Gore, has been appointed a member of the state board of health for a year from August 1——Dr John J Lloyd, superintendent of the State Tuberculosis Sanatorium, Catawba, has accepted the superintendency of the Iola Sanatorium, Rochester, N Y——The recommendation of Dr Claude D J MacDonald, Norfolk, as medical assistant to the department of health has been approved

Lack of Physicians—The number of physicians of the state who have connected themselves with the Medical Reserve Corps of the Army and Navy has more than offset the recent graduates from medical schools, and has left at least thirty-seven cities in Virginia without sufficient physicians to care for the sick For this reason, the state board of health invites communication from physicians who wish to take up practice or to change their present locations

CANADA

Tuberculosis in Army—More than 1,000 tuberculous soldiers have already been returned to Canada

Coming Meetings—The sixth annual congress of the Canadian Public Health Association will be held in Ottawa on September 27 and 28 The meeting of the Canadian Association for the Prevention of Tuberculosis will be also held in Ottawa on September 26

Hospital News—Mount Hamilton Hospital, Hamilton, Ont., was opened a short time ago by the Governor-General Only one unit—the medical building—has been opened, but it is the intention to eventually have a hospital of ten units The site of the institution is a beautiful one on Hamilton mountain Dr Langrill is the medical superintendent and worked very faithfully for the results already achieved

Free Diagnosis of Syphilis—Dr John W S McCullough, Toronto, of the Ontario Board of Health announces that facilities have been provided in the laboratories of the province at Toronto, Kingston and London for the free diagnosis of venereal diseases Outfits for taking specimens are supplied to physicians from either of these centers Provision has also been made for the taking of specimens for the diagnosis of typhoid, diphtheria and tuberculosis, also sterilized bottles will be supplied for samples of water

Baby Welfare—Of every thousand babies born in Canada, one hundred and two die within twelve months Recently, under the direction of Major John W S McCullough of the Ontario Board of Health, a week was devoted in Hamilton to acquiring information relative to the care and feeding of infants, the health of the mother and the attention she received at the time of the infant's birth, the financial position of the parents, and other causes bearing on the possible causes of infant mortality The information will be tabulated in connection with the baby welfare movement in Ontario

GENERAL

Mortality from Tuberculosis—According to a bulletin of the Department of Commerce, the Bureau of the Census is planning the publication of a monograph on the mortality from tuberculosis covering the calendar year 1918 The cooperation of all physicians is asked to the extent of carefully recording or supervising the statements of occupations on the death certificates Circular letters have been sent out inviting this cooperation The value of the monograph will depend to a large extent on the accuracy of the information in regard to the occupation of decedents

FOREIGN

Neurologic Quarterly Founded in Switzerland—The new *Schweizer Archiv fur Neurologie und Psychiatrie* is to be published irregularly, four times a year Prof C von Monakow is the chief of the editorial staff and with him are associate Profs P Dubois, R Weber, B Manzoni and H W Maier It is to be the organ of the organized neurologists and alienists of Switzerland, and is to be published by Füssli of Zurich

The Ruffer Wards in the Greek Hospitals—The death of Sir Armand Ruffer was mentioned recently in these columns (The Journal, June 2, p 1642) The son of a French banker at Lyons, he won a high position in England and later in Egypt as the president of the public health and quarantine service there It was while returning from organizing the public health service at Saloniki that the ship was torpedoed by a Teuton submarine The minister of war of

Greece has now ordered that one ward in every hospital in the country shall be called the Ruffer ward During his many years in Egypt Ruffer spent much time in studying the pathology of the old dynasties thus reconstructing the medical history of the Pharaohs by a kind of necropsy thousands of years postmortem

Memorial Tablet for Oswaldo Cruz—A large party of medical men and others who were delegates from the medical faculty of the University of Buenos Aires and other medical organizations of Argentina sailed to Rio de Janeiro recently to visit the profession at Rio The party bore with them a large bronze tablet to be placed in the Bacteriologic Institute founded and directed by Oswaldo Cruz An illustration of the graceful tablet is shown in the *Prensa Medica Argentina* representing Argentine medical science humanity and hygiene decorating with laurel the memorial inscription to the great hygienist who cleared Rio de Janeiro of yellow fever A number of medical students accompanied the party The physicians were welcomed by the authorities as guests of the nation during their stay They also presented the Museum of Natural History with plaster casts of the five skulls on which F Ameghino has based his anthropologic theory of the fossil American man

Deaths in the Profession Abroad—**R G Menocal**, professor of surgery at the University of Havana and secretary of the public health service——**A von Frisch**, professor of surgery and chief of the urologic clinic of the University of Vienna author of numerous works on the pathology of the prostate and other urologic subjects aged 68.——**R Alvarez**, chief of the clinical service connected with the chair of psychiatry at Buenos Aires aged about 27—**A Gabryszewski**, professor of surgery at the University of Lemberg——**P Hirtz**, of Colmar at an advanced age.——**G Clarac**, a young member of the editorial staff of the *Archives des maladies du cœur*——**C M Ullman** of Göteborg member of the Swedish Medical Association since 1866 aged 84——**L Orlandini**, an army surgeon and professor of the Colegio Nacional at Buenos Aires From the latest casualty lists In England **Capt. W A Sneath, Capt H E Rose, Capt. A G Peter, Lieut. B Cohen, Lieut. J E Foreman, Lieut. J G Bradley-Smith, E Rayner, E Cox, W G Barras** In Italy **Lieut P Puviani, Lieut. G Alliaud, Capt. E Fergola, G Bollatti**

Death of Kocher—The cable brings word of the death of the Swiss surgeon Theodor Kocher professor of surgery at the University of Berne, Switzerland aged 76 He was the pioneer in operative treatment of goiter, and thus has perhaps carried his fame the farthest but he has published well over a hundred works on various branches of surgery reporting important contributions to the science Among them were his works on the surgery of the male sexual organs, excision of rectal cancer by resection of the coccyx, and operations on the digestive tract on hernia spastic contracture, and surgery of the brain and spinal cord He attracted attention as early as 1866 by his research on the arrest of hemorrhage, and reduction of dislocation of the shoulder, and was called to the chair of surgery at Berne when only 31, where he has since remained In 1874 he published an argument in favor of thyroidectomy, and by 1911 he had performed 4 629 operations on goiter with no infectious complications in the last thousand, and the list has grown steadily since. His description of cachexia strumipriva dates from 1883, and his research on cretinism and hyperthyroidism may be said to have been the starting point for our present knowledge of the glands with an internal secretion Kocher was awarded the Nobel prize in medicine in 1909, and in 1912 he presented the university with an endowment fund of $40 000 for promotion of research in the medical sciences He stipulated that the interest should be allowed to accumulate until the fund totaled $100,000, which he figured would be about the time the university was celebrating its centennial in 1934 At one time he was president of the German Surgical Association, and of the international committee of the International Surgical Congresses The list of his works in the Surgeon-General's Catalogue of 1903 fills over two columns, and he has published much since The blood platelet extract which he worked out with Fonio as an effectual means to arrest hemorrhage he is said to have presented freely to the warring governments at the beginning of the war, donating large quantities besides the information as to the technic for its preparation Some of his works have been translated into different languages, and two Festschrifts have been published in his honor, one on the twenty-fifth and one on the fortieth anniversary of his entrance into the university faculty

LONDON LETTER

London, July 18 1917

The War

A CRISIS IN MILLING

When the government passed a law compelling an extraction of 78 per cent of flour from the wheat berry, it laid a somewhat severe burden on the great roller millers who had been wont to regard a 72 per cent extraction as the secret of good milling and had left 28 per cent of the berry to go to live stock and poultry feeding The great mills however, adapted themselves to the new conditions and supplied a loaf quite as palatable as its predecessor But under the stress of circumstance the government introduced two changes which between them have resulted in the most formidable crisis known to modern milling The first was to raise the percentage of extraction from 78 to 81, and the second to order the incorporation of a material percentage of cereals other than wheat It is the latter requirement which has principally led to a breakdown at the mill The incorporation of cereals other than wheat in the loaf made the production of a homogeneous flour very difficult but skilled operatives could have faced the situation with some degree of hopefulness if 'the other cereal' had been specified Rice maize maize semolina barley rye and oats all admit of special treatment as incorporations with wheat Millers relied on finding a public for this or that addition Then there came the prohibition of the sale of bread with any specified addition The miller now gets first one addition then another and the local mill's supply is governed by the arrivals of cereals other than wheat at the nearest port Complaints have been loudest from places where the addition is believed to have been maize The result of the new high extraction combined with the confused and varying additions was found by the end of June to be such chaos and so much dispute that the Millers' Association agreed by a unanimous vote to make a stand Having to break with the government the association decided on a bold policy and to demand a 76 per cent wheat extract Thus the whole forward policy marked by the successful 78 per cent loaf is imperiled Should the master millers repudiate the task of making flour under the present requirements the government officials already in nominal charge of the mills, may hire experts in the place of the masters Luckily the crisis has occurred at a time when the national consumption of bread is at an ebb

Increase of 104 Per Cent in Food Prices Over Figures Before the War

Official statistics show that on an average there has been an increase in food prices of 104 per cent compared with July, 1914 the month before the war began The increase varies from 65 per cent in the case of fresh butter to 191 per cent in the case of certain parts of frozen mutton The average price of bread—23 cents for the 4 pound loaf—is double that in July, 1914 and flour shows a proportionately greater advance, amounting to 109 per cent The price of granulated sugar had risen over the war period from an average of about 4 cents to nearly 12 cents per pound but increased duty accounts for about 2.5 cents of the rise The average price of cheese is slightly more than double than in July, 1914 that of eggs slightly less than double The price of tea is 74 per cent higher, but about half of the advance is due to increased taxation Butter and margarin show increases approximating to 65 and 74 per cent respectively, over prewar prices Milk prices had risen 60 per cent or 4 cents per quart In arriving at the general percentage increase, the several articles are weighted in accordance with the proportionate expenditure on them in prewar family budgets no allowance being made for the economies resulting from changes in dietary which have been effected since the beginning of the war, especially in those families in which the total income has not been increased by advances in rates of wages, greater regularity of employment, increased output or the working of overtime As an illustration of possible economies in this direction, if eggs are omitted from the dietary, margarin substituted for butter, and the consumption of sugar and fish reduced to one half of that prevailing before the war, the general percentage increase since July 1914, instead of being 104, would be 72 During last month alone the general level of retail prices of the principal articles of food rose about 1 per cent The prices of British beef increased about 5 per cent, and those of other meat from 3 to 4 per cent. Bacon and fish showed some decline in price as compared with a month ago

Marriages

Asst Surg Robert Howard McMeans, U S N, Pensacola, Fla, to Miss Julia Rock of San Antonio, Tex, at New Orleans, July 19

Asst Surg Lyle Dee McMillan, U S N R, Detroit, to Miss Birdie Leona Knowles of Vincennes, Ind, at Cleveland, July 22.

Tom Ray Knowles, M D, to Miss Adele Berta Hexter, both of Colorado Springs, Colo, at Gunnison, Colo, July 23

Lieut Addley H Gladden, Jr, M O R C, U S Army, Monroe, La, to Miss Le Reine Hill of New Orleans, July 25

Howard Lester Farquhar, M D, Pittsburgh, to Miss May Frances Geiser of Smithburg, Md, recently

Floyd Burke Gillespie, M D, Brooklyn, to Miss Amanda Poulson of Omaha, in Brooklyn, July 20

William Emerson Preble, M D, Boston, to Mrs Helen Smiley Phelps of Dixburg, Miss, July 6

Benjamin Harrison Gillespie, M D, to Miss Edna Pearl Clawson, both of Akron, Ohio, April 30

Charles Clifford Pinkerton, M D, to Miss Maude McPherson, both of Akron, July 24

Milton Edward Rose, M D, Chicago, to Miss Dorothy J Shade of Decatur, Ill, July 21

Philip R Waughop, M D, to Mrs Anna Fletcher Olmstead, both of Seattle, July 10

Gibbs Biscoe, M D, Penndleton, Ark., to Miss Evan Goree of Pine Bluff, Ark, July 25

John Fleming Dicks, M D, to Miss Ethel Reily, both of New Orleans, July 25

Albert N Baggs, M D, to Mrs Ida V Fagan, both of Philadelphia, July 26

Max Peter Gethner, M D, to Miss Lillian Livshis, both of Chicago, recently

Deaths

Albert Wellington Smith, M D, Milford, N H, Dartmouth Medical School, Hanover, N H, 1886, aged 64, formerly a Fellow of the American Medical Association, a member of the New Hampshire Medical Society, for forty years a practitioner of Milford, for ten years town moderator, for twenty years a member of the school board, and from 1881 to 1890, representative in the state legislature, died at his home, July 21, from carcinoma of the bladder

Edward George Rave, M D, Hicksville, N Y, New York University, New York City, 1877, aged 73, formerly coroner and health officer of Oyster Bay, N Y, a member of the Medical Society of the State of New York, formerly vice president of the College of Pharmacy of Brooklyn, for thirty-five years chief surgeon of the Long Island Railroad, died at his home, near Hicksville, L I, July 24

Henry Edward Waite, M D., New York City, Eclectic Medical College of the City of New York, 1885, aged 71, a Fellow of the American Medical Association, who had devoted his life to the manufacture of electrical medical apparatus, and was the president of the Waite and Bartlett Manufacturing Company, died at his summer home, in Bethel Park, N Y, July 26, from heart disease

Louis C B Graveline, M D, Nassau, N Y, Albany, N Y, Medical College, 1862, aged 80, a veteran of the Civil War, for twenty years local surgeon of the Boston and Albany Railroad at Albany, police surgeon for two years, and for five years physician of Columbia County, one of the founders of the Albany Zouave Cadets, died at his home, July 22, from cerebral hemorrhage

Livius Lankford, M D, Norfolk, Va, New York University, New York City, 1868, aged 61, a Fellow of the American Medical Association, president of the board of health, Norfolk, for several years, a member of the Virginia Examining Board, from 1886 to 1890, July 18, while drilling with the home guard of his ward, died suddenly from myocarditis

William Anderson, M D, Trenton, N J, College of Physicians and Surgeons, Chicago, 1888, aged 59, president of the Anderson Rain-Proof Coat Company, Trenton, and the New Jersey Pulp Plaster Company, was accidentally drowned in the Delaware and Rariton Canal, Trenton, July 7

Isaac Stover Long, M D, Freehold, N J, University of Pennsylvania, Philadelphia, 1866, aged 76, a Fellow of the American Medical Association, for more than thirty years treasurer of the Monmouth County (N J) Medical Society, died at his home, May 11, from senile debility

James Dwight, M D, Boston, Harvard Medical School, 1879, aged 65, a member of the Massachusetts Medical Society, for nineteen years president of the United States National Lawn Tennis Association, died at his summer home at Mattapoisett, Cape Cod, July 14

Theron Dyke Jenkins, M D, Winthrop, N Y, University of Vermont, Burlington, 1913, aged 26, a member of the Medical Society of the State of New York, was instantly killed by a man while making a professional call in Stockholm, N Y, June 21

Sarah A French Battey, M D, New York City, Woman's Medical College of the New York Infirmary for Women and Children, 1887, aged 56, formerly a member of the New York Academy of Medicine, died at her home, July 26

Harry Wallace Haskell, M D, Brooklyn, New York University, New York City, 1891, aged 52, formerly a member of the Medical Society of the State of New York, died at the home of his sister in Brooklyn, July 28

George Benton Reynolds, M D, Scranton, Pa, University of Pennsylvania, Philadelphia, 1891, aged 47, formerly a Fellow of the American Medical Association, died at his home, July 26, from brain abscess

Albert Claude Bowerman, M D, Strathmore, Calif, University of Toronto, Ont, 1876, aged 67, formerly a Fellow of the American Medical Association, died at his home, May 28, from cerebral hemorrhage.

Lewis Marion Perry, M D, Broadwell, Ill, University of Louisville, Ky, 1868, aged 80, formerly a Fellow of the American Medical Association, died at his home, July 17, from neuritis

Thomas Dyson Walker, M D, St John, N B, University of Edinburgh, Scotland, 1891, aged 50, died in the Massachusetts General Hospital, Boston, July 22, from chronic nephritis

James Allen Nichols, M D, New York City, Long Island College Hospital, Brooklyn, 1883, aged 58, a member of the Medical Society of the State of New York, died at his home, July 28

Robie Blake, M D, Cornish, Me, Eclectic Medical College of Maine, Lewiston, 1884, aged 79, inventor of the solid black carbon transmitter for telephones, died at his home, July 27

S Walter Scott, M D, Troy, N Y, University of Vermont, Burlington, 1867, aged 71, for twenty-seven years a practitioner of Troy, died at his home, July 22, from heart disease

Charles Yoke, M D, Bridgeport, Ind, Medical College of Indiana, Indianapolis, 1879, aged 60, a member of the Marion County Council, died at his home, July 20, from pneumonia

George W Hughes, M D, Armstrong, Ill, Illinois Medical College, Chicago, 1900, aged 44, a Fellow of the American Medical Association, died at his home, June 9

Paul Emory Gervais, M D, Arctic, R I, Victoria University, Coburg, Ont, 1887, aged 54, also a druggist, died at his home, June 10, from tumor of the glottis

Harvey H Converse, M D, Eastford, Conn, American Eclectic Medical College, Cincinnati, 1878, aged 70, died at his home, July 16, from heart disease

George Pyburn, M D, Sacramento, Calif, Cleveland University of Medicine and Surgery, Cleveland, Ohio, 1859, aged 86, died at his home, July 20

William E Cox, Carters Creek, Tenn (license, Tennessee, 1889), aged 63, died at his former home in Theta, Tenn, July 8

Burdette Ramsey, M D, Paint Lick, Ky, Medical College of Ohio, Cincinnati, 1857, aged 92, died at his home, July 13

Franklin B Lauderbaugh, M D, James Creek, Pa, University of Maryland, Baltimore, 1883, died at his home, June 20

James A Bradford, M D, Macedonia, Ill, University of Louisville, Ky, 1910, aged 33, died at his home, June 28

George Edward Wilson, M D, New York City, New York University, New York City, 1887, died about July 23

John Charles McEnery, M D, Chicago, Rush Medical College, 1897, aged 48, died at his home, about July 9

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

TRIMETHOL

Report of the Council on Pharmacy and Chemistry

Trimethol is the trade name for a substance said to be trimethyl methoxy-phenol of the formula $C_6H(CH_3)_3(OCH_3)OH$—1, 2, 4, 5, 6, originated by J. T. Ainslie Walker. It is sold as a nontoxic germicide having a Rideal-Walker phenol coefficient of 40 even in the intestinal canal. It is described as insoluble in water and not to be decomposed in the alimentary tract and to be excreted unchanged in the feces.

Trimethol itself is not obtainable. Pharmaceutical preparations—Trimethol Syrup, Trimethol Capsules and Trimethol Tablets said to contain Trimethol—are prepared by The Walker-Leeming Laboratories and sold by Thos. Leeming and Co., New York.

The Trimethol preparations are advertised for use in all conditions dependent on intestinal putrefaction. The advertising claims made are very extensive and some of them give to "Trimethol" the scope of a panacea. For example:

> Physicians are constantly reporting cases where Trimethol has been especially efficient and describing conditions (until recently not associated with intestinal infection) which have been distinctly benefited by its use. This would seem to bear out the contentions of Charcot and Metchnikoff that 90% of all human ailments have their origin in intestinal infection.
>
> The careful practitioner, when in doubt, will bear this in mind now that we have a really efficient and non-toxic intestinal germicide—not a mere antiseptic.

The Walker-Leeming Laboratories have not formally requested the Council to consider the Trimethol preparations though in a personal letter to a member of the Council J. T. Ainslie Walker invited an investigation of his compound.

For the investigation of Trimethol and its preparations the Council secured the aid of a bacteriologist who has given much attention to the study of the intestinal flora. The Walker-Leeming Laboratories and J. T. Ainslie Walker were both asked to submit details of experimental studies and also to furnish a supply of the pure Trimethol. But the only data sent that had any definiteness set forth the bacterial counts made of plate cultures of stools of one patient before and after the administration of Trimethol Capsules.

REFUSE TO FURNISH TRIMETHOL

The request for the pure substance was refused on the grounds that the substance was not used in the undiluted form. The failure to furnish the chemical substance claimed as the essential constituent of the Trimethol preparations is to be deprecated if indeed it has not greater significance. At least it made it impossible for the Council's expert to express his results in terms of absolute Trimethol of established composition. The data obtained apply only to the market preparations claimed to contain Trimethol. So far as the investigation and report go, 'Trimethol' is a hypothetical substance.

Clinical or animal tests of the asserted intestinal antiseptics have hitherto given equivocal results because it is impossible, on the one hand, to predict the course of any intestinal infection or, on the other hand, to determine what effect, if any, was produced by administration of the medicament. It therefore seemed unwise to undertake this line of investigation until the more direct laboratory bacteriologic methods had been exhausted. Consequently the investigator checked, in the first place, the phenol-coefficient of one of the Trimethol preparations and then also determined its "penetrability" coefficient. Although by both methods Trimethol was found to be a germicide, the results did not indicate any remarkable potency or other properties, suggesting that the drug possessed special therapeutic value. From the results obtained it appeared inadvisable to proceed further with the work until more definite evidence of the nature and of the value of the substance should be at hand. The report of the bacteriologic investigation follows:

THE BACTERIOLOGIST'S REPORT

'I have made no attempt to study the effects of internal administration of Trimethol on the intestinal flora. The methods available at the present time of enumerating the numbers of *viable* bacteria in the feces are probably not accurate within one hundred per cent. and the precision of such determinations is equally variable. The physiologic factors involved are so complex that they would appear to make a really valuable assay a question of many months' careful study. If it were possible to administer known amounts of Trimethol as such, the problem might be worth while, inasmuch as the available reactive substance is not at present quantitatively assayable, this phase of the investigation barely seems practicable.

Trimethol Syrup as such appears to be about ten per cent. as efficient in its germicidal value as carbolic acid. If there is ¾ m. Trimethol per dram (as the label indicates) is correct, the substance would appear to possess germicidal merit provided enough could be administered, if it is not affected by passage through the stomach.

A package containing four four-ounce bottles labeled "Trimethol A Non-Toxic Germicide SYRUP Representing ¾ m. Trimethol per dram Alcohol 1½ per cent." was received at the laboratory December 15, 1916. Later a smaller package containing, according to label, 100 Trimethol tablets, each 5 gr. representing 1¼ m. Trimethol was received. The tablets were apparently chocolate coated.

Two separate series of tests[1] were made upon the syrup: (a) PHENOL COEFFICIENT, using the method outlined in *Bulletin No. 82, Hygienic Laboratory, Method of Standardizing Disinfectants With and Without Organic Matter*; (b) A PENETRABILITY COEFFICIENT by the method of Kendall and Edwards, *Journal of Infectious Diseases* 8, 250.

The PENETRABILITY COEFFICIENT resulted as follows: A 5 per cent. solution of phenol killed *bacillus coli*, suspended uniformly throughout a cylinder of 1.2 per cent. agar in the interval between 60 and 90 minutes. A one per cent. solution of phenol killed the same organisms under the same conditions in the interval between two and one half and three hours. An undiluted solution of Trimethol Syrup killed the organism in the interval between two and one half and three hours. A ten per cent. solution (nine volumes of distilled water to one volume of Trimethol Syrup) failed to kill the organisms in four hours. It would appear that undiluted Trimethol Syrup has the same combined penetrability and germicidal value as a one per cent. phenol solution.

The PHENOL COEFFICIENT: A ten per cent. solution of Trimethol Syrup in distilled water (nine volumes of distilled water to one volume Trimethol Syrup) possesses the same germicidal power as a one per cent. solution of carbolic acid. This coefficient takes no cognizance of the *actual amount of Trimethol as such*—it merely indicates the relative germicidal power of the Trimethol Syrup as sold.'

The preceding report shows that Trimethol Syrup has a phenol coefficient of 1/10 and assuming Trimethol Syrup contains the amount of Trimethol declared, the substance Trimethol would have a phenol coefficient of 8⅓ instead of 40 as is claimed. According to Kendall and Edwards' method, the penetrability-germicidal value of the syrup is equal to a 1 per cent. solution of phenol.

WALKER'S REPLY TO CRITICISM

The report of the bacteriologist was submitted to The Walker-Leeming Laboratories for comment. The following reply was received from J. T. Ainslie Walker:

> (*May 22, 1917*). In reply to your letter of the 15th inst., which has just been placed before me on my return to town, I have to inform you that the potent constituent of Trimethol Tablets and Trimethol Syrup is not fully available as a bactericide until it comes in contact with the pancreatic fluid.
>
> As you will see from the enclosed extracts from clinical reports, the therapeutic value of Trimethol has been well established.
>
> As regards penetrability, *no claim* has ever been made for Trimethol in this connection, and as I pointed out in my original paper (*American Medicine*, September, 1914), when referring to the independent tests made by Dr. Frederick Sondern: "No attempt was made to determine the bacterial content of the solid particles, as in the opinion of the writer sterilization of the interior of these particles is not only absolutely impossible, but wholly unnecessary. The fact of the fluid contents of

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[1] The details of the tests are omitted from this report but will appear in the Annual Council Reports.

> the canal being sterile may be taken to indicate that the exterior of all solid particles is in a like condition, and therefore harmless It is the organisms in the fluid portions only that produce the deadly effects through the chemical substances they secrete, those in the interior of the solid portions (*i e*, as evacuated) may be disregarded, as they are not available for good or evil'
>
> "I must confess to no little surprise on learning that your investigator is still using the Hygienic Laboratory method of determining phenol coefficients I would respectfully suggest that you call his attention to the critical comparison of the Hygienic Laboratory and R W Tests, which he will find in the enclosed reprint from the *New York Medical Journal* of March 11, 1916—'Instead of being an improvement upon the standard R W Test, the so called Hygienic Laboratory Method is so defective as to be wholly unreliable, and incapable of furnishing results of any scientific or practical value whatever'"

As to the statement that the potent constituent of Trimethol Tablets and Trimethol Syrup is not fully available as a bactericide until it comes in contact with the pancreatic fluid, attention is called to a leaflet, which accompanies each bottle of Trimethol Syrup, that reads

> "Trimethol is insoluble in water, but when properly emulsified has a Rideal Walker co efficient of 40, that is to say, it is 40 times more efficient as a germicide than phenol (pure carbolic acid)"

The Trimethol Syrup which was used in the investigation, when mixed with water produced an almost perfectly transparent solution, which justifies the assumption that the proper physical conditions were observed and that this objection is not well founded

As regards the relation of pancreatic fluid to bactericidal availability of Trimethol, there is little to say, other than that the published statements in the advertising accompanying the packages make no mention of this point. It would be interesting to know what, if any, relation the pancreatic fluid has to this substance in view of the statement that it "has a Rideal-Walker co-efficient of 40"

The Trimethol "literature" does not throw light on the question, What is the germicidal value of Trimethol Syrup as compared with phenol? The only available method of determining the germicidal value of a liquid disinfectant is to make a direct comparison of the substance in question with phenol under similar conditions Given parallel conditions, not obviously prejudicial to the substance tested in contrast to the standard solution, the results are comparable, and furnish a basis for estimating the relative germicidal power of the two substances In the investigation, Trimethol Syrup and phenol were thus compared

As regards the contention that the bacteria within fecal masses are harmless, this may be granted But it must also be admitted that these intestinal masses are constantly being reformed so that buried micro-organisms do not remain in the interior For this reason, the determination of the penetrability coefficient of a germicide is pertinent

Regarding the respective merits of the old Rideal-Walker and the newer U S Hygienic Laboratory method of determining the phenol coefficient, the Rideal-Walker method was found to possess certain drawbacks, and in an attempt to overcome these the "*Lancet* Method" was evolved, this method in turn was improved in the U S Hygienic Laboratory and led to the United States Public Health Service Hygienic Laboratory method for the determination of the phenol coefficient of disinfectants (published in *Hygienic Laboratory Bulletin 82*) In 1913 this method was formally adopted by the Council for the valuation of disinfectants or germicides of the phenol type, and the method is now in general use for this purpose in the United States[1] In this connection Hiss and Zinsser may be quoted (Ed 2, page 80) "The most precise method of standardizing disinfectants is that now in use in the United States Public Health Service" Stitt, director of the United States Naval Medical Schools, in his Practical Bacteriology, Blood Work and Parasitology (Ed 4, page 473) says "In the United States disinfectants are rated according to the Hygienic Laboratory Phenol Coefficient"

The Council adopted the recommendation of the Committee on Pharmacology to the effect that the claims made for Trimethol are unsupported by acceptable evidence. Accordingly, Trimethol and the pharmaceutical preparations said to contain it—Trimethol Syrup, Trimethol Capsules, and Trimethol Tablets—were held ineligible for New and Nonofficial Remedies

Correspondence

PRIORITY FOR SIMPLIFIED METHOD FOR DETERMINING THE ISO-AGGLUTININ GROUP

To the Editor —It is of interest to note that the simplified method for determining the iso-agglutinin group, by W L Moss (The Journal, June 23, 1917, p 1905) is substantially the same as that used by me, and described in the *Journal of Laboratory and Clinical Medicine*, October, 1916 Two points given by me, however, should be emphasized The serums of Groups II and III should be especially strong in agglutinins to prevent error Moreover, the use of Group IV serum is of value, as noted by me, for a control in case the agglutinins of the other groups happen to have weakened

Norman E Williamson, M D, Stockton, Calif

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed Every letter must contain the writer's name and address, but these will be omitted, on request

GUIDE TO FRENCH

To the Editor —I want a small elementary guide to French, one that would give those of us who may go to France a sufficient knowledge of French to get along *Please do not use my name if you publish* this

M R C

Answer —The following books have been especially prepared for this purpose

Wilkins, Coleman and Preston First Lessons in Spoken French for Doctors and Nurses, Chicago, University of Chicago Press 54 cents, postpaid

Wilkins Coleman and Huse First Lessons in Spoken French for Men in Military Service, Chicago, the University of Chicago Press, 54 cents, postpaid

Gallichan, Walter M The Soldiers' English and French Conversation Book, Philadelphia, J B Lippincott Company, 30 cents

Plumon, Eugene Vade Mecum, New York, Brentano's, 75 cents

The books by Wilkins, Coleman and Preston and by *Plumon* contain portions especially adapted for medical officers The Vade-Mecum contains much special information in the way of tables, measures, abbreviations, etc

PICA—EATING DIRT

To the Editor —I have a boy 2 years old who is in perfect physical condition in all respects, but who persists in eating dirt or sand or anything with earth in it Will you tell me what is lacking in his system which causes this *phenomenon*, and what I can give him to relieve the situation?

C O Y

Answer —The habit of dirt eating, called pica, occurs as a neurosis in children between the first and second years, and sometimes in older persons, as a form of perverted appetite In most of these cases earth, cinders, etc, may be consumed with avidity, whereas ordinary food is refused Such patients become thin, sallow and unhealthy looking, and suffer from colic and diarrhea The condition is usually curable by prevention, by producing free evacuation, and by supplying plenty of wholesome food In case the habit is associated with mental deficiency, the treatment is directed toward that condition. The condition is psychologic, not physiologic, in character, and must be treated from a psychologic point of view

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[1] Those who are interested in the relative merits of the Rideal Walker, the *Lancet* and the Hygienic Laboratory methods for the valuation of disinfectants should read the following Method of Standardizing Disinfectants with and without Organic Matter, The Journal A M A, Aug 24, 1912, p 667, Standardization of Disinfectants, Report of the Council on Pharmacy and Chemistry, The Journal A M A, April 26, 1913, p 1316, *Standardizing* Disinfectants, The Journal A M A, Sept 30, 1916, p 883

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Hawaii Honolulu Sept. 10-13 Chairman Dr F W Benz 1141 Alakea St Honolulu

Massachusetts Boston Sept 11-13 Sec., Dr Walter P Bowers Room 501 No. 1 Beacon St, Boston

REPORT OF SECOND EXAMINATION OF THE NATIONAL BOARD OF MEDICAL EXAMINERS

The second examination of the National Board of Medical Examiners was held in Washington D C June 13-21 1917 Of the twenty seven who applied twenty five were found to have the essential preliminary and medical qualifications and thirteen of these appeared for the examination (see table bottom of page) the others having been ordered on active duty

The subjects of the examination and the relative value of each were anatomy 100, physiology 75, chemistry 75 pathology 50, bacteriology 50 materia medica pharmacology and therapeutics 75 medicine 200, surgery 200, obstetrics and gynecology 100, hygiene and sanitation 50 and medical jurisprudence, 25 A percentage of 75 was required to pass. Falling below 65 in more than two subjects or below 50 in more than one subject, constituted a failure. The following colleges were represented

PASSED

Name and College	Year of Graduation
Adrian Stevenson Taylor University of Virginia and Harvard Medical School	[illegible] and [illegible]
George B Packard Harvard Medical School	1914
Roscoe Clayton Webb Johns Hopkins	1914
Walter Philip Kreichbaum Northwestern University	1914
Arthur Beck Hamilton University of Pennsylvania	[illegible]
Douglas Power Murphy University of Pennsylvania	1916
Clarence Stiles McKee University of Pennsylvania	[illegible]
James Lancelot Wilson Columbia University College of Physicians and Surgeons	1916
Harvey Welton Snyder Atlanta Medical College	1916

FAILED

College	Year of Graduation
University of Michigan	1910
Northwestern University	[illegible]
McGill University	1916

RESULT OF EXAMINATIONS FOR MEDICAL DEPARTMENT OF THE NAVY

The following are the combined figures of two examinations held in April and May of this year of members of the Naval Reserve Force for commissions in the Medical Corps, U S Navy Four hundred and eighty-six were examined and of these 369 found qualified professionally, that is, 76 per cent

The first ten honor men were graduates of the following institutions, in the order indicated

1	Pennsylvania	1917
2	Northwestern	1915
3	Harvard	1917
4	Rush	1917
5	Washington	1917
6	Northwestern	1917
7	Western Reserve	1916
8	Northwestern	1917
9	Georgetown	1917
10	Harvard	1917

Thus of the first ten Northwestern led with three, Harvard had two and Pennsylvania Rush, Washington University, Western Reserve and Georgetown, one each

Of the first twenty-five Harvard led with four Northwestern and Rush had three each Pennsylvania and Illinois had two each and Washington University, Western Reserve Georgetown Minnesota, Tulane California Cornell Pittsburgh Atlanta, Vermont and Tennessee, one each

Medical College	Number Examined	Number Passed	Percentage Passed	[illegible]	[illegible]
University of Minn Med School	16	16	100	[illegible]	[illegible]
Med School of Harvard Univ	14	14	100	[illegible]	4
George Wash Univ Med School	11	11	100	81.19	[illegible]
Johns Hopkins Univ Med Dept	8	8	100	[illegible]	14
Tulane Univ School of Med	8	8	100	[illegible]	[illegible]
Univ of Pitts School of Med	[illegible]	[illegible]	100	[illegible]	[illegible]
Columbia Univ Col of P & S	[illegible]	[illegible]	100	[illegible]	11
Univ of Virginia Dept of Med	[illegible]	[illegible]	100	[illegible]	[illegible]
Cornell Univ Med College	[illegible]	[illegible]	100	[illegible]	[illegible]
Yale Univ School of Medicine	[illegible]	[illegible]	100	[illegible]	[illegible]
Syracuse Univ Col of Medicine	[illegible]	[illegible]	100	[illegible]	[illegible]
Boston Univ School of Medicine	1	1	100	[illegible]	[illegible]
Bowdoin Med School	1	1	100	[illegible]	[illegible]
Univ of Buffalo Dept of Med	1	1	100	[illegible]	[illegible]
McGill Univ Faculty of Med	1	1	100	[illegible]	[illegible]
Univ of S Carolina Sch of Med	1	1	100	[illegible]	[illegible]
Univ of North Dakota	1	1	100	[illegible]	[illegible]
Temple Univ Dept of Med	1	1	100	[illegible]	[illegible]
Western Reserve Univ Sch of Med	1	1	100	[illegible]	1
Univ of Penn School of Med	[illegible]	[illegible]	100	[illegible]	[illegible]
Rush Med College (Univ of Chi)	1	1	100	[illegible]	[illegible]
Univ of California Med School	11	10	91	[illegible]	[illegible]
Univ and Bellevue Hosp Med Col	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Washington Univ Med School	8	[illegible]	[illegible]	[illegible]	[illegible]
Northwestern Univ Sch of Med	8	[illegible]	[illegible]	[illegible]	[illegible]
Atlanta Medical College	8	[illegible]	[illegible]	[illegible]	19
Univ of Michigan Med School	8	[illegible]	[illegible]	[illegible]	[illegible]
Long Island College Hospital	8	[illegible]	[illegible]	[illegible]	[illegible]
Univ of Illinois Col of Med	11	[illegible]	[illegible]	[illegible]	[illegible]
Univ of Colorado School of Med	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Jefferson Med College of Phila	[illegible]	21	[illegible]	[illegible]	21
Univ of Alabama School of Med	6	[illegible]	[illegible]	[illegible]	[illegible]
St Louis Univ School of Med	11	9	[illegible]	[illegible]	[illegible]
Leland Stanford Jr Univ Sch M	16	13	81	[illegible]	[illegible]
Univ of Texas Dept of Med	5	4	80	[illegible]	[illegible]
Georgetown Univ School of Med	5	4	80	[illegible]	1
Univ of Maryland School of Med	15	[illegible]	80	[illegible]	44
Univ of Kansas School of Med	9	7	[illegible]	[illegible]	[illegible]
Hahnemann Med Col & Hosp	4	[illegible]	[illegible]	[illegible]	[illegible]
State Univ of Iowa Col of Med	4	3	75	[illegible]	[illegible]
Univ of Tennessee Col of Med	11	8	73	[illegible]	[illegible]
Indiana Univ School of Med	11	8	73	[illegible]	[illegible]
Univ of Oregon Dept of Med	[illegible]	[illegible]	71	[illegible]	[illegible]
Medical College of Virginia	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Marquette Univ School of Med	9	[illegible]	[illegible]	[illegible]	41
Univ of Vermont Col of Med	8	5	63	[illegible]	[illegible]
Medico Chirurgical Col of Phila	8	5	63	[illegible]	[illegible]
Vanderbilt Univ Med Dept	17	10	59	[illegible]	[illegible]
Ohio State Univ College of Med	10	5	50	[illegible]	[illegible]
Univ of Georgia Med Dept	2	1	50	[illegible]	43
Univ of Neb College of Med	2	1	50	[illegible]	[illegible]
Chicago College of Med & Surg	2	1	50	[illegible]	[illegible]
Tufts College Medical School	18	9††	50	[illegible]	[illegible]
Medical Col of State of S Carolina	13	6†	46	[illegible]	[illegible]
Fordham Univ School of Med	7	3	43	[illegible]	[illegible]
Univ of Louisville Med Dept	18	7†	[illegible]	[illegible]	[illegible]
Detroit Col of Med & Surg	12	4*	33	[illegible]	[illegible]
John A. Creighton Med Col	8	2	25	[illegible]	[illegible]
Univ of Arkansas Med Dept	1	0†			[illegible]
Albany Medical College	1	0†			[illegible]
Birmingham Medical College	1	0			[illegible]

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* Each star represents one candidate who failed on first examination but passed on second

† Each dagger represents one candidate who failed on both examinations

AVERAGES OBTAINED IN THE EXAMINATION OF THE NATIONAL BOARD OF MEDICAL EXAMINERS

Subjects	Candidates by Number												General Aver by Subjects
	1	2	3	4	5	6	7	8	9	10	12	13	
Anatomy	82	82	54	98	42	79	78	60	82	82	81	86	76.3
Chemistry	66	77	70	87	67	80	76	85	67	81	79	81	76.1
Pharmacology materia medica and therapeutics.	90.5	90	77	94	60.2	90	83	81	90	90	90	90	87
Obstetrics	80	95	84	93	60	77	70	75	80	75	85	85	79.7
Hygiene	77.5	80	70	85	66	79	76	70	66	67	81	76	74.4
Medicine	83	83.5	78	96	67.5	86	81	76	83.5	84.5	91	87.5	83.5
Surgery	76	85.5	47	82	69	81	73	68.5	69	83.5	87	77.5	76.2
Pathology	78	84	57	90	60	80	77	74	71	73	90	88	76.2
Bacteriology	80	80	69	92	74.5	70	79	56	69	82	80	79	75.9
Physiology	86	87	70	95	72	75	83	75	80	88	90	77	78.9
Medical jurisprudence	80.3	82	85	90	68	80	58	75	78	92	88	73	80.6
General average of candidates	80	83	69	91	63	79	76	72	75	82	85	81	

Book Notices

Operative Surgery of the Nose, Throat, and Ear, for Laryngologists, Rhinologists, Otologists, and Surgeons. By Hanau W Loeb, A M , M D , Professor of Ear, Nose and Throat Diseases in St Louis University, in Collaboration with Joseph C Beck, M D , George W Crile, M D , William H Haskin, M D , Robert Levy, M D , Harris P Mosher, M D , George L Richards, M D , George F Shambaugh, M D , and George B Wood, M D In Two Volumes, Volume 2 Cloth Price, $7 Pp 427, with 476 illustrations. St Louis C V Mosby Company, 1917

The first volume of this work appeared several months ago, and now with this volume, the complete work furnishes a valuable contribution to the literature of this special field of surgery In any treatise on operative surgery, illustrations, if well reproduced, are invaluable concomitants to the text The author of this work cannot be too highly complimented on the character of the unusually large number of good illustrations They assist the reader very materially in understanding the various steps of the operations described The first 158 pages are devoted to the surgery of the nasal passages A short chapter on the pharynx follows, given up mostly to the different operations on the tonsils Then comes an instructive chapter on endolaryngeal operations with the aid of the laryngoscope, and finally the operations on the external ear and the surgery of the mastoid process The book goes into the subject-matter direct, omitting much that might be included on pathology, etiology, etc, but which is really unnecessary in a work strictly on operative surgery

Cataract, Senile, Traumatic and Congenital. By W A Fisher, M D , Professor of Ophthalmology, Chicago Eye, Ear, Nose and Throat College Cloth Price, $1 50 Pp 119, with illustrations Chicago Chicago Eye, Ear, Nose and Throat College, 1917

Had the title of this work been "Extracts from the Literature of the Smith-Indian Extraction of Senile Cataract," it would have conveyed a much truer idea of its contents The whole subject of traumatic and congenital cataracts, their causation and treatment, is dismissed in ten pages, about five pages are devoted to other methods of removing senile cataract, while the remainder of the book, say, one hundred pages, consists mostly of previously published articles and chapters on the removal of cataract in its unruptured capsule, chiefly by Vail, Wright, Greene, Colonel Smith and the author Long extracts from popular textbooks — de Schweinitz, Fuchs, Weeks, Swanzy — also take up a good deal of space There are many rather poor electrotypes illustrating the book, some of which, especially of the author's modifications of the instruments or methods of others, are considered of such prime importance that they are repeated For instance, identical cuts showing the "Smith-Fisher instrument" and the "author's lid hooks" are pictured on three separate occasions The extraction of senile cataract in the unruptured capsule in properly selected cases, and in the hands of a trained operator and a trained assistant presents certain advantages over many forms of removal, but that it should be employed universally or to the exclusion of all other extraction methods (see page 99) is not yet established

Anatomy and Histology of the Mouth and Teeth By I Norman Broomell, D D S , Professor of Dental Anatomy and Clinical Dentistry, Philadelphia Dental College, and Philipp Fischelis, M D , Professor of Histology, Medico Chirurgical College of Philadelphia Fifth Edition Cloth Price, $3 net Pp 467, with 368 illustrations Philadelphia P Blakiston's Son & Co , 1917

This is practically a reprint of the previous edition, and is a combination of what might be better published as three separate books It is subject to the criticism which may usually be applied to such efforts It includes descriptive anatomy of the mouth and adjacent parts, the anatomy of the teeth and their supporting tissues, and the histology of these structures In general, the book lacks the finer detail and thoroughness which a work on anatomy or histology should have. For example, in describing the cementum which forms the outer layer of the tooth root, it states that this tissue is similar to bone, but neglects to mention the very important difference that it has no circulation of blood, which is the thing of probably greatest importance for the dentist to know in considering the chronic infections involving this tissue The statement is repeated in this edition that the enamel of the incisor teeth is formed from three points of beginning instead of four The book states that the gingival portion of the gum tissue is of denser structure than those portions more distant from the teeth, but does not mention the differences in detail, such as the many long projecting legs of connective tissue which carry blood vessels far into the dense epithelium and provide for its rapid regeneration Throughout, the book fails to have the vision of practical application which would make its use as a text more interesting to the student There are many excellent illustrations Among these the "in series" pictures of the roots of teeth in process of development give the best idea of any yet published of their form during growth

Medicolegal

Representing to Judge that a Person Is Insane and Needs Hospital Treatment

(Reycraft vs McDonald (Mich), 160 N W R 836)

The Supreme Court of Michigan affirms a judgment for the defendant, who was sued for slander because he made to the probate judge a statement to the effect that the plaintiff was insane and needed hospital treatment The court says that the statement was made in the office of the judge of probate when only the defendant and the judge were present It was clear from the record that it was for the purpose of instituting proceedings by which the plaintiff's alleged insanity should be judicially determined On the information received by him at the time from the defendant, the judge prepared a proper petition for an order directing the admission of the plaintiff to an asylum or institution for the care of the insane, and the petition was signed and verified by the defendant Notice of such petition, and of the time and place of the hearing thereon, was duly served on the plaintiff, who, with his attorney, thereupon appeared at the probate office for the purpose of the investigation. In the meantime it had been discovered by the judge that the defendant had no authority under the statute to make the petition, and he so announced to the plaintiff's attorney The attorney replied that they would waive the question of jurisdiction and proceed with the merits of the matter, but it being the opinion of a physician, who had been consulted, that the plaintiff was not insane, the proceedings were dismissed On behalf of the defendant it was claimed that the statement made to the probate judge regarding the plaintiff's insanity was absolutely privileged because made in the course of judicial proceedings, but the plaintiff insisted that it was not made in the course of judicial proceedings, inasmuch as the defendant was not authorized to institute such proceedings, and his petition gave the court no jurisdiction over the person of the plaintiff The supreme court agrees with the defendant's contention It thinks his communication to the probate judge in this case was a matter of absolute privilege It was made for the purpose of instituting legal proceedings, and to a court having jurisdiction of the subject-matter Whether the defendant was authorized to make the petition, and whether it empowered the court to act in the particular case, were themselves questions for judicial determination.

Employment of Physician by Claim Agent or Subordinate Employee of Railroad

(Scullin et al vs Routh (Ark), 191 S W R 218)

The Supreme Court of Arkansas affirms a judgment for $210 in favor of plaintiff Routh against the defendants, as receivers of a railroad company, for medical services rendered to a man who sustained a double compound fracture of the leg in a wreck on the railroad The court says that the general claim agent of the company telephoned to the plaintiff to go and take charge of the man and take him to his home. The plaintiff did so, and charged for the service $10 Septic infection set in and it became necessary for some one to continue to treat the man. The plaintiff made twenty-eight more visits to him and charged therefor $7.50 a visit, which he said was a reasonable price, the place at which the patient was being about 9 miles away. The plaintiff stated that the general claim agent and his assistant both knew that he was continuing to treat the man and directed him to do so. The claim agent admitted that he called the plaintiff to take charge of the man after he had been injured in the wreck, and also admitted that he knew that the plaintiff had continued to treat him and that it was necessary for some physician to treat him, but he said he had no authority to employ a physician except in cases of emergency. The railroad company introduced its rules in regard to the employment of physicians, which stated that the company would not recognize any responsibility for medical and surgical attention, etc., except such as contracted for by its general manager or superintendent. When persons or employees were injured the nearest company surgeon should be called. If the case was urgent and the company surgeon could not be immediately procured, the conductor, agent or officer in charge, if unable to procure instructions from the proper authority, was authorized to call the nearest surgeon available to administer first aid and care to the patient until the company surgeon could take charge of the case. This court has adopted the rule that subordinate employees of a railroad company who under ordinary circumstances have no authority to bind the railroad company by contracts for medical attendance on its servants or passengers have an implied authority to make such contracts in its behalf in cases in which there is an urgent necessity for the immediate employment of a physician or surgeon to attend to servants or passengers who have been injured by conditions or occurrences incident to the operation of a railroad. The urgency and necessity of the employment of the plaintiff by the claim agent who was in charge at the scene of the accident was submitted to the jury under proper instructions, but counsel for the defendants contended that under the rule announced in the decisions of this court as above the liability of the railroad arises with the emergency and with it expires. They contended that the emergency ceased before the plaintiff rendered all the services for which he obtained judgment, and that on this account the verdict was without evidence to support it. But the court does not think that the doctrine of implied authority in such cases had any application to the facts of this case, for under the rules the claim agent had express authority to employ a physician within certain limitations. There was sufficient evidence to warrant the jury in finding that when the wreck occurred the general claim agent took charge and was unable to secure a surgeon of the company, and that he called in the plaintiff to take charge of the case. It was true that on cross examination the plaintiff admitted that the company had a local physician near where the injured man resided, but it was not shown that this physician or any other physician of the company was in a position to take charge of the man. This was a matter peculiarly within the knowledge of the company. Its officers knew at what time one of its surgeons could take charge of the case, and the burden of proof was on the defendants to establish that fact. They did not do so, and there was nothing in the record tending to show that a surgeon of the company could have taken charge of the case at any time while the services were rendered by the plaintiff. The verdict for the plaintiff was sustained by the evidence.

Society Proceedings

COMING MEETINGS

Am. Assn. Obstetricians and Gynecologists, Newark, N. J., Sept. 17-19.
American Electro-Therapeutic Association, Atlantic City, Sept. 11-13.
American Roentgen Ray Society, Pittsburgh, Sept. 19-22.
Colorado State Medical Society, Colorado Springs, Sept. 25-27.
Indiana State Medical Association, Evansville, Sept. 26-28.
Michigan State Medical Society, Battle Creek, Sept. 4-6.
Missouri Valley Medical Society, Lincoln, Neb., Sept. 20-21.
Pennsylvania State Medical Society, Pittsburgh, Sept. 24-27.
Utah State Medical Association, Salt Lake City, Sept. 12-13.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Roentgenology, New York

July, II, No. 7

1 Roentgen Diagnosis of Pathologic Gallbladder. A. W. George and R. D. Leonard, Boston.—p. [illegible]
2 Development of Roentgen Rays. H. C. Snow, Chicago.—p. 337.
3 Localization of Foreign Bodies. W. A. Wilson, Montreal, Can.—p. 341.
4 Sutton Method of Foreign Body Localization. J. H. Skinner, Kansas City, Mo.—p. [illegible]
5 Dangers in Roentgen Laboratory. J. S. Strayer, Ithaca.—p. 357.

Archives of Pediatrics, New York

June, XXXII, No. 6

6 Early Recognition of Poliomyelitis. R. S. Haynes, New York.—p. 401.
*7 Cerebrospinal Fluid in Acute Anterior Poliomyelitis with Special Reference to Diagnosis. J. A. [illegible], Philadelphia.—p. 413.

Boston Medical and Surgical Journal

July [illegible], CLXXIII, No. 4

8 Some Medical Practice among New England Indians and Early Settlers. C. M. Cobb, Lynn.—p. 97.
9 [illegible] Analysis in Study of True Epilepsy. J. L. Dunbar, Baltimore.—p. 105.
10 Surgical Treatment of Laryngeal Cancer. J. E. MacKenty, New York.—p. 110.
*11 Mastiche and Potassium Permanganate Tests Applied to Cerebrospinal Fluid of Insane. L. G. Lowrey, Boston.—p. 115.
12 Case of Fracture of [illegible] Bone. W. I. [illegible], Boston.—p. 117.
13 Case of Henoch's Purpura. I. D. Gardner, New Bedford.—p. 118.

11. **Mastiche and Potassium Permanganate Tests Applied to Fluid of Insane.**—From data presented by Lowrey dealing with the mastiche test on thirty-six fluids and the permanganate test on twenty fluids from insane persons, the conclusion is drawn that neither of these tests is of sufficient value to become a part of the routine examination of spinal fluids from the insane.

Colorado Medicine, Denver

July, XII, No. 7

14 Tumors of Breast. P. Hillkowitz, Denver.—p. 180.
15 Pulpless Teeth. J. C. Brownlie, Denver.—p. 183.
16 Dysmenorrhea. L. J. Weldon, Denver.—p. 189.
17 Transillumination of Larynx and Upper Trachea. F. R. Spencer, Boulder.—p. 193.
18 Diseases of Eye Resulting from Lesions of Mouth and Throat. J. A. Patterson, Colorado Springs.—p. 197.

Florida Medical Association Journal, Jacksonville

July, II, No. 1

19 Presence of Tubercle Bacilli in Specimens of Feces Examined for Animal Parasites. H. H. Fox, Tallahassee.—p. 1.
20 Responsibility of General Practitioner to Mental Defective. C. B. Coon, Tampa.—p. 3.
21 Venereal Disease Problem. E. G. Birge, Jacksonville.—p. 10.
22 Value of Fresh Cow's Milk in Infant Feeding Compared with Artificial and Pasteurized Milk. J. C. DuPuis, Lemon City.—p. 14.
23 Abdominal Pregnancy. G. R. Holden, Jacksonville.—p. 16.
24 Neglect of Massage Reason Osteopaths and Chiropractors Exist. F. J. Walter, Daytona.—p. 19.

Georgia Medical Association Journal, Augusta

July, VII, No. 3

25 Classification of Mental Disorders Adopted by Georgia State Sanitarium. E. M. Green, Milledgeville.—p. 41.
26 *Endothelioma of Kidney. Report of Three Cases. J. Funke, Atlanta.—p. 47.
27 Treatment of Nausea of Pregnancy. S. T. Barnett, Atlanta.—p. 51.
28 Patent Medicine and Quacks. J. O. Elrod, Forsyth.—p. 54.

26. **Endothelioma of Kidney.**—Funke's first patient was a male, aged 43 years. Two years before the fatal issue he began to experience discomfort in the region of the kidney; he underwent repeated examination, but no definite conclusion could be reached as to the nature of the trouble. About one and one-half years before his death there appeared in the urine a few red blood cells, and about one month later the left kidney appeared to be slightly enlarged. Succeeding

examination revealed an increase in the size of the left kidney and constant presence of blood in the urine. About one month before death, the urine contained spherical cells, ranging from 20 to 30 microns in diameter, the protoplasm of which contained highly refractile bodies not unlike fat globules The nucleus could not be seen The necropsy showed a mass occupying the position of the left kidney measuring 13 by 42 by 12 cm, and weighing 900 gm The lower half of the right kidney contained a circumscribed, well defined nodular mass measuring 2 5 cm Histologically, the diagnosis was endothelioma of the left kidney, with metastasis to the opposite kidney and peribronchial lymph nodes The second patient was a girl, 2 years of age There was no history of a preexisting disease which was in any way related to the present condition About six months previous the parents noticed that something inconvenienced the child, and that the disease seemed to be on the left side In a very short time the patient complained of great discomfort, there was a bulging in the region of the left kidney Urine showed nothing abnormal A diagnosis of sarcoma was made The mass was removed at operation and was found to be a part of the kidney It proved to be an endothelioma of the kidney The third patient was a man, 54 years of age His trouble began about one and one-half years before death, and consisted of discomfort in the region of the left kidney For more than six months before the operation the urine contained blood, never large in quantity Enlargement of the kidney could not be determined The left kidney was removed The patient died four days later The histology of this growth was like that of the other two cases

Illinois Medical Journal, Chicago

July, XXXII No 1

29 Injuries of Head, with Special Reference to Intracranial Complications T A Davis, Chicago —p 1
30 Lower Abdominal Incision H T Byford, Chicago —p 10
31 Diabetes Initial Fast and Tolerance Testing E J Brown, Decatur —p 12
32 Splenectomy for Hemolytic Icterus C A Elliott, Chicago —p 18
33 Tonsil as Portal of Entry in Tuberculosis of Cervical Glands W B Metcalf, Chicago —p 19
34 State Hospital—Its Purposes, Limitations and Handicaps W M Hotchkiss, Jamestown, N D —p 23
35 Incipient Psychoses G H Moody, San Antonio, Texas —p 27
36 Care of Newborn T Warloe, Chicago —p 28

Indiana State Medical Association Journal, Fort Wayne

July X No 7

37 Factors which Contribute to Safety and Success in Surgical Procedures J C Fleming, Elkhart —p 269
38 Evolution of the Beasley Splint for Femur G F Beasley, Lafayette —p 276
39 Working Knowledge of Ophthalmology and Otolaryngology for General Physician G W Spohn, Elkhart —p 286

Iowa State Medical Society Journal, Des Moines

July VII, No 7

40 Wrist Injuries Frequently Overlooked H L Beye, Iowa City —p 239
41 Fractional Gastric Analysis M Mallory and L K Meredith, Des Moines —p 242
42 Blood Chemical Analyses in Reference to Diagnosis and Treatment R B H Gradwohl, St Louis —p 244
43 Vasomotor Epilepsy or Vasoconstrictor Anaphylaxis J J Rowan, Jr, Dubuque —p 248
44 Duty of Medical Man in Present Crisis J C Bloodgood, Baltimore.—p 254
45 Radium Therapy D P Johnson, Muscatine —p 255

Journal of Medical Research, Boston

July, XXXVI, No 3

46 *Studies on Circulation of Kidney in Relation to Architecture and Function of Organ in Health and Disease L Gross, Montreal, Canada —p 327
47 *New Pathogenic Sporotrichum Found in Case of Acute Arthritis of Knee Following Injury (Sporotrichum Councilmani) S B Wolbach, W R Sisson and F C Meier, Boston —p 337
48 Part Played by Protein Free Digestion Products and by Meat Infusion in Diphtheria Toxin Production H C Robinson and L F Rettger, New Haven, Conn —p 357
49 *Physiologic Significance of Anatomic Changes Produced in Nerve Cells by Toxin of B Diphtheriae R R Simmons, St Louis —p 377
50 *Spleen as Bacterial Filter Y Ozaki, New Haven, Conn —p 413
51 *Treatment of Patients with Bronchial Asthma with Subcutaneous Injections of Proteins to which They are Sensitive I C Walker, Boston —p 423
52 Study of Micro Organisms of Dental Caries P R Howe and R E Hatch —p 481
53 *Studies in Calcification by Use of Vital Dyes C C Macklin, Baltimore.—p 493
54 Studies on Paratyphoid Enteritidis Group Differentiation of Members of Paratyphoid Enteritidis Group from B Typhosus C Krumwiede, Jr, and L A Kohn New York —p 509
55 Selective Medium for Isolation of B Pestis from Contaminated Plague Lesions and Observations on Growth of B Pestis on Autoclaved Nutrient Agar J G Drennan and O Teague, Rosebank, N Y —p 519

46 **Circulation of Kidney**—By means of barium sulphate injections and roentgenograms, Gross studied the architecture of the blood vessels of the kidney The results obtained indicate that this method of demonstrating the circulation is applicable to most organs, and that it furnishes a more reliable, rapid, complete and truthful picture than can be obtained by other methods so far in use So far as the kidney is concerned, the older conceptions which are still found in anatomic and histologic textbooks were shown to be wrong The roentgenograms will show that there are no divisions of the renal artery which could possibly correspond to the so-called arcuate arteries, and that, instead, the renal arterial architecture resolves itself into a simple tree-like dichotomous arrangement of the branches of the principal afferent artery These, it is true, run between the pyramids and cortical substance, also they break up rather acutely into their branches, undoubtedly by this means transmitting directly the high aortic pressure A remarkable point is the very abrupt and complete breaking up of the large arteries, as they approach the cortex, into numerous very small straight branches which permeate the latter This abrupt breaking up of comparatively large arteries into very small ones (endarteries) undoubtedly gives rise again to a relatively tremendously high pressure in the latter In view of the totally different conception which these reconstructions give of the architecture of the renal blood vasculature, a different terminology is suggested The first large branches of the renal artery coursing between the pyramidal and cortical substance, Gross would call interlobar arteries — the very numerous small endarteries which run perpendicularly throughout the cortex, intralobular arteries — and the small branches which come off at right angles to the latter and run to the glomeruli, glomerular arteries

47 **Pathogenic Sporotrichum Found in Acute Arthritis**—From a case of traumatic arthritis (nail puncture) of the knee, the authors isolated a new sporotrichum for which the name *Sporotrichum councilmani* is proposed The important distinguishing features of *Sporotrichum councilmani* are (1) its pleomorphic growth, characterized by a free aerial growth of hyphae, (2) the abundant spore formation, large size of the spores and absence of lateral spore clusters and (3) the occurrence in lesions as septate branching filaments

49 **Anatomic Changes Produced in Nerve Cells**—The changes produced by diphtheria toxin, Simmons says, are essentially, if not solely, those of pure functional depression The degree of depression produced by lethal doses of the toxin depends on the time afforded for the action of the toxin after inoculation Temporary cessation of function may result from profound depression, or, if the process goes on to necrosis, the damage is permanent Clinical evidence is not lacking to prove that in some cases the damage done is irreparable and the paralysis permanent, while in other cases it is temporary and the cells ultimately return to normal or nearly normal function

50 **Spleen as Bacterial Filter**—Ozaki found that the accumulation of bacteria in the spleen, such as occurs in experimental bacteremia, is principally dependent on the vital activity of the cells, and the mechanical filtration of bacteria by the spleen is not an important factor in their detention

51 **Treatment of Bronchial Asthma**—This paper is based on the study and treatment of forty patients with bronchial asthma, all of whom were sensitive to some type of protein derived from bacteria, food, or animal hair Bronchial asthmatics who are sensitive to proteins found in horse

dandruff and in cat hair were relieved of attacks during a series of subcutaneous injections with these proteins Some cases have remained free from asthma as long as five and six months while treatment was continued Bronchial asthmatics who are sensitive to the proteins in *Staph pyogenes-aureus* and *albus* were relieved of attacks during treatment with vaccines of these organisms and in the case of the former relief continues for four to six months after the vaccines are discontinued but with the albus vaccines relief continues for a shorter time after they are discontinued A second course of vaccines relieves a relapse of asthma quicker than did the first course Bronchial asthmatics who are sensitive to the food proteins were relieved of attacks and they remain free from asthma while such proteins are omitted from their diet Patients with bronchial asthma associate attacks with cold air dampness changeable weather winds menstruation indigestion nervousness irritability colds and bronchitis After treatment with proper proteins these patients become tolerant to such conditions so that they can be exposed to them without asthma and they become free from nervousness irritability and indigestion without the use of drugs and hygienic measures There seems to be two types of colds and bronchitis, one type is anaphylactic and relief or freedom from this type follows proper treatment with proteins the other type seems to be caused by bacteria and frequently vaccine relieves and prevents these

53 **Studies in Calcification** — The results of Macklin's investigations showed that nonosseous calcareous deposits such as calcific granules in the permanently ligated kidney and in the lens in cataract are distinctly and specifically stained by feeding madder When the dyestuff was fed during only a part of the period when the concretion was forming the stain is found only in parts of the concretion and these stained areas probably represent the masses which were deposited during the time that the dyestuff was being fed In these respects and in the fact that the intensity of staining differs in different areas in direct *proportion* to the extent of the deposition during the period of madder feeding of calcium salts the phenomenon is analogous to that which obtains in developing bone of the madder fed animal Thus the conception of a closely similar or identical physicochemical process in the formation of developing bone and of pathologic calcific deposits is strengthened Not only is calcified cartilage formed in the development of "cartilage bone," vitally stained by madder feeding but the portions of any cartilage which contain salts of calcium are vitally stained with the dyes of madder if feeding is prolonged This staining was found in rats fed continuously for three months or longer

Journal of Urology, Baltimore

June I No 3

56 *Ratio Between Urea Content of Urine and of Blood After Administration of Large Quantities of Urea T Addis San Francisco —p 263
57 *Operative Treatment of Urethrorectal Fistula Presentation of Method of Radical Cure. H H Young and H B Stone Baltimore.—p 289
58 Use of Tests of Renal Function in Cases of Nephritis H A. Christian Boston —p 319

56 **Ratio between Urea in Urine and Blood** —The ratio between the urea content of the urine and of the blood expresses the number of times by which the urea excreted in the urine during a certain period of time exceeds the amount of urea present in 100 c.c of the blood supplied to the kidney during this time. It is the relation between the amount of work accomplished by the kidney, and the most important measure of the amount of work the kidney is called on to perform Differences in the concentration of urea in the urine are not the cause of this variability in the ratio over short periods of time. Evidence is given against the supposition that this variability arises from such alterations in the amounts of urea or of oxygen brought to the kidney as would be produced by differences in the rate of flow of blood through the kidney The magnitude of the ratio increases with increase in the blood urea concentration In other words, the kidney responds to a call for more work by an increase in output which is greater than the increase in demand A direct relationship exists between the magnitude of the ratio and the size of the kidneys The removal of one kidney leads to a depression of the ratio In kidneys whose effective size has been reduced by necrosis or degeneration of varying extent there is a relation between the degree of depression in the ratio and the amount of tissue which has been rendered functionless

57 **Operative Treatment of Urethrorectal Fistula** The operation described by Young and Stone is performed as follows First suprapubic drainage of the bladder is established with the patient in dorsal posture The patient is then shifted to the exaggerated lithotomy position A racquet shaped incision beginning in the midline of the perineum about 3 cm anterior to the anal margin is carried backward to this margin and then encircles it at the mucocutaneous juncture Through the circular part of this incision the mucosa of the rectum is dissected free all around until a cylinder of the membrane is stripped from its attachments well above the point at which the rectal orifice of the fistula opens the fistulous tract of course being divided transversely in this process This ascending dissection of the bowel is carried upward until sufficient mucous membrane is loosened to permit the pulling of the segment containing the fistulous orifice well out of the anus the orifice and a small margin of normal mucosa above it and all that below it lying outside the skin level and later being excised Next the structures of the perineal body are divided through the straight incision in the midline — the handle of the racquet — so as to expose thoroughly the urethral orifice of the fistula

The edges of the urethral fistulous opening are freshened and brought together with catgut sutures over a sound previously passed through the urethra These sutures *do not* penetrate the surface of the urethral mucous membrane The levatores fasciae and smaller muscles are then brought together by interrupted catgut sutures across the midline of the perineum in several layers reconstructing the perineal body much as is done in gynecologic operations for relaxed vaginal outlet Finally the sphincter ani is restored by uniting its ends with a mattress suture of catgut and the midline incision is closed with interrupted sutures The last stage in the operation consists in the excision of the protruding cuff of rectal mucosa in which the fistulous opening lies and the union of the lower end of the rectal tube to the anal skin margin by interrupted silk sutures after four submucous subcutaneous sutures of catgut have been placed at quadrant points to help anchor the bowel in place

Kentucky Medical Journal, Bowling Green

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59 Recruiting for the Military Service I T Woodbury —p 307
60 Unusual Injuries Treated under Adverse Circumstances O B Demaree Mt Sterling —p 317
61 Railway Surgeon and His Work L M Scott Jellico Tenn —p 319
62 Neuroses Following Railroad Injuries H B Scott Louisville —p 322
63 Gunshot Wounds W Bach Jackson —p 323
64 Sprains and Their Treatment C Austin Bagdad —p 325
65 Fractured Skull J W Parker, Corbin —p 326
66 Illustrating Some Possibilities of Antiseptic Surgery D G Simmons Adairville —p 327
67 Railway Surgeon as an Expert Witness A R Burnam, Jr Richmond —p 328
68 Blood Pressure W A Jenkins, Louisville —p 330
69 Laboratory as Aid in Diagnosis of Mastoiditis and Its Complications W B Doherty Louisville —p 334
70 Therapeutics of Organic Heart Diseases E A Cram, Butler —p 340
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73 Pericarditis. W Byrne Sr Russellville —p 346
74 Efficacy of Drugs W J Gerding Newport —p 348

Laryngoscope, St. Louis

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76 Primary Carcinoma of Middle Ear Report of Case H Newhart, Minneapolis —p 543
77 New Instrument and Technic for Enucleation of Tonsil J Braun New York —p 556
78 Headache Its Otorhinologic Aspects W T Patton, New Orleans —p 564

79 Lateral Sinus Thrombosis with Spontaneous Rupture of Sinus A C Lewis, Memphis, Tenn —p 569
80 Adhesions of Soft Palate to Posterior Pharyngeal Wall, Successful Silver Plate Method of Treatment F Hazlehurst, Baltimore —p 574
81 Interesting Cut Throat Case W W Carter, New York —p 578
82 Case of Staphylococcemia W W Carter, New York —p 579

Medical Record, New York

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83 Histopathology of Human and Experimental Poliomyelitis G B Hassin, Chicago —p 89
84 Effects of Civilization on Morbidity and Mortality of Tuberculosis S A Knopf, New York —p 94
85 Nonspecific Protein Treatment of Inoperable Cancer S P Beebe and H S Williams, New York —p 98
86 Alcoholism in Relation to Epileptoid States and Epilepsy A Gordon, Philadelphia —p 100
87 Medicolegal Aspects of Radium Therapy J B Bissell, New York —p 102
88 Gas Bacillus Infection in Chronic Mastoiditis with Cholesteatoma, Operation, Recovery W W Carter, New York —p 104

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89 Poliomyelitis A H Doty, New York —p 135
90 Civilization and Children's Diseases R G Freeman, New York —p 136
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93 Early Diagnosis of Tuberculosis M E Lapham, Highlands, N C —p 143
94 Relative Value of Massage, Exercises, and Baths in Treatment of Affections of Heart D Graham, Boston —p 148
95 Instruments of Precision for Percy Treatment of Uterine and Other Cancer Electropyrometric Heater Distensible Hydrothermotaxic Heater A E Gallant, L H Moss, New York, L. Bliss, Washington, D C, and E N Lightfoot, New York —p 151
96 Trench Fever B Sherwood Dunn, Paris —p 155

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97 Looking Backward W G Morgan, Washington —p 449
98 Treatment of Chronic Protozoic Enterocolitis as Encountered in Northern United States F Smithies, Chicago —p 460
99 Differential Diagnosis of Atrophic Hepatic Cirrhosis and Gastric Cancer, without Palpable Tumor A E Austin, Boston —p 468
100 Three Cases of Colon Infection J Sailer, Philadelphia —p 473
101 Roentgen Rays in Diagnosis of Intestinal Stasis G E Pfahler, Philadelphia —p 478
102 Syphilis of Stomach, Report of Cases A L Levin, New Orleans —p 498
103 Silent Common Duct Stone D N Eisendrath, Chicago —p 507
104 Chronic Hemolytic Icterus, Report of Two Cases Treated by Splenectomy J W Larimore, St Louis —p 513
105 Stomach Disturbance without Stomach Disease, Report of Cases M L Harris, Chicago —p 524
106 Relation of Bacteriuria and Pyuria to Intestinal Disturbances in Children F C Neff, Kansas City —p 536
107 Pyloric Obstruction in Infancy E H Schorer, Kansas City —p 541

Missouri State Medical Association Journal, St Louis

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108 True Physician a Moral Force J F Welch, Salisbury —p 273
109 Intra Ocular Tuberculosis and Associated Inflammatory Lesions of Upper Respiratory Tract F O Schwartz and M M Meyers, St. Louis —p 276
110 Complement Fixation Test for Tuberculosis and Wassermann Test in Pulmonary Tuberculosis G Ives, and J J Singer, St Louis —p 284
111 Prevention of Venereal Diseases H E Kleinschmidt, St Louis —p 288
112 Drug Intoxication H C Park, Knobnoster —p 292

Modern Hospital, St. Louis

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113 Henry W Putnam Memorial Hospital, Bennington, Vt H L Walker and S S Goldwater, New York —p 1
114 Institutional Care of Aged I L Nascher, New York —p 4
115 Economy in Cutting of Surgical Dressings C C McGrath, Detroit —p 8
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118 State Care for Feebleminded J M Murdoch, Polk, Pa —p 12
119 Sonoma State Home for Feebleminded and Epileptics. W J G Dawson, Eldridge, Cal —p 14
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New Jersey Medical Society Journal, Orange

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127 Ideals of Medicine W P Eagleton, Newark —p 273
128 Idealism in Medicine H C Bleyle, Newark —p 274
129 Review of Fifty Years' Practice of Medicine G R Kent, Newark —p 277

New York Medical Journal

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130 Medical Service in British Army T H Goodwin —p 101
131 Psychopathology of Prostitution M J Karpas, New York —p 103
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133 Human Anthrax, Report of Case J B Bissell, New York —p 110
134 Clinical Significance of Fecal Analysis L W Kohn, Philadelphia —p 111
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137 Treatment of Locomotor Ataxia by Maloney Method H F Wolf, New York —p 121

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139 Race Betterment Based on Principles of Physical and Mental Prophylaxis A Gordon, Philadelphia —p 153
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141 Cause and Management of Puerperal Eclampsia R S Hill, Montgomery, Ala —p 157
142 Acroparesthesia H Climenko and R Bogan, New York —p 159
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144 Operative Treatment of Gunshot Fractures J R. Eastman, Indianapolis and R B Bettman, Chicago —p 164
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Northwest Medicine, Seattle

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147 Important Medical Matters of Today J M Semple, Spokane —p 191
148 War Experiences in England and France R D Forbes, Seattle —p 194 To be concluded
149 Case of Unusual Idiosyncrasy to Quinin R W Stearns, Medford, Ore —p 197
150 Linitis Plastica (Leather Bottle Stomach) E O Houda, Tacoma —p 197
151 Rectal Dam and Irrigator S D Calonge, Salt Lake City —p 198

Ophthalmic Record, Chicago

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152 Diagnosis of Couched Cataract R H Elliot, London, England —p 329
153 Case of Pneumococcus Conjunctivitis of Great Chronicity and Subsequent Death from Pneumonia C A Clapp, Baltimore —p 336
154 Rare Intra Ocular Tumor H R Wright, Columbus —p 339

Pennsylvania Medical Journal, Athens

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155 Removal of Foreign Bodies by Direct Bronchoscopy and Esophagoscopy C C Eves, Philadelphia —p 687
156 Mine Injuries to Eye as Related to Compensation Law G D Murray, Scranton —p 695
157 Disappointments Following Tonsillar Operations B C. Gile Philadelphia —p 705
158 Trachoma—Diagnostic Point and Method of Treatment V L VanKirk, Pittsburgh —p 708
159 What is Diagnosis? F N Emmert, Chambersburg —p 709
160 *Diabetic Gangrene J H Jopson and E H Goodman, Philadelphia —p 710
161 *Present Day Treatment of Tuberculous Abscesses and Sinuses C W Delaney, Altoona —p 717
162 Idiosyncrasies in Ectopic Pregnancy W A Nason, Roaring Spring —p 719
163 *Some Phases of Chronic Colitis E Zugsmith, Pittsburgh —p 721
164 *Value of Roentgen Rays in Diagnosis of Pulmonary Tuberculosis W F Manges, Philadelphia —p 725

160 Abstracted in The Journal, Nov 4, 1916, p 1394

glucose 2 5 per cent 4 The nutrient agar, with salts and glucose, is then tubed, about 4 c c being added to each test tube 5 The sterile tubed agar is melted in boiling water, and after allowing it to cool to about 50 C, add 1 c c of human plasma to each tube and mix thoroughly by rolling the tube between the palms Allow the medium to solidify in a sloping position For plating, the contents of three tubes may be added to a Petri dish

20 **Brilliant Green as Antiseptic**—Webb dissolves the brilliant green in normal saline solution in the strength of 1 in 1,000 At this strength it can be used as a lotion, and gauze soaked in it can be applied to the wound as a dressing It is nonirritating to the tissues Webb has applied it to the peritoneum, the meninges, the synovial membranes, and practically all other varieties of tissue without harmful effects The less vascular tissues are stained green by its use—for instance, the cuticle of the skin, the edges of fascia or aponeurosis, and sometimes bones But where it has been in contact with the more vascular muscle or subcutaneous tissue, no staining occurs Dead and necrosed portions of muscle are stained green, and this fact is sometimes of use in distinguishing such necrotic tissue After being in contact with the tissue, the dye gradually becomes transformed into a leukoderivative, and the hitherto green-dyed gauze in contact with the wound becomes white to the depth of several layers Granulation tissue rapidly forms in the wound The most striking results are seen in the cut surfaces of muscle Webb has also used the green in conjunction with "salt" tablets It has given better results than the use of one or other alone It can also be used after the method of Carrel —½ ounce to 1 ounce of a 1 in 1,000 solution being syringed down a tube or series of tubes leading into the depths of the wound It is not so irritant to the skin edges as the hypochlorite solution

35 **Treatment of Gunshot Injuries of Spinal Cord**—Three types of cases which arrive at a casualty clearing station showing paraplegia are considered by Gray—one in which the symptoms are due to local concussion, another in which the cord is organically severed, and a third in which paraplegia has developed since the injury The paralyzing effects of local concussion are often very marked This may be caused even by the flight of a missile close to but outside the spinal canal In such cases the paralysis usually begins to clear up within a few days If no sign of return of function occurs within nine or ten days, the question of operation for removal of blood clot or possible depressed bone, occurs, but must be decided at the base If, on the other hand, a rifle bullet causing a through and through wound of the trunk traverses the spinal canal, the cord is usually hopelessly pulped It is obvious that cases of complete sudden paraplegia should not be kept in the casualty clearing station if they are otherwise fit to travel If, however, the paralysis has developed since the man was wounded, it is probably due to pressure from blood clot (when it is not likely to be absolute), or to displacement of fragments of bone during movement In both these cases early operation may be indicated, but in the latter only if the Roentgen rays show a minor degree of displacement If displacement is great, the cord is probably pulped

If conduction, either motor or sensory, is present in the affected part of the cord when the patient is admitted to the casualty clearing station, it is usually found that fragments of bone are pressing on the cord, or that the missile causing the injury is in close relationship to it, and will probably have carried in sepsis There may or may not be partial division of the cord A missile with momentum sufficient to carry it far past the cord usually produces complete early paraplegia, even though it may not cause complete section If, then, Roentgen rays reveal fracture or the presence of a foreign body partly or wholly in the spinal canal, operation should be performed at once, with the quadruple purpose of relieving pressure, cleansing the wound, restoring normal circulation as soon as possible, and thus of combating sepsis In some cases pain is so excessive and uncontrollable by other means, that whatever the amount of paralysis, operation is imperative in order to relieve the pain

Edinburgh Medical Journal

July XIX, No 1

36 Technic of Splenectomy C J Smith—p 8
37 Acute Otitis Media with Paralysis of Sixth Nerve (Gradenigo Symptom Complex) D Guthrie—p 15
38 Clinical Symptoms and Treatment of Hypertrophy of Thymus Gland C G Cumston—p 20
39 *Case of Myxosarcoma of Soft Palate D M Greig—p 24

39 **Myxosarcoma of Soft Palate**—A boy, 13 years of age, was referred to Greig on account of a growth on the palate of between three and four years' duration He had no illness previous to nearly four years ago, when it was noticed that he was speaking somewhat thickly, and on examination a small growth was observed depending from the soft palate This was removed by a surgeon under local anesthesia The growth recurred, however, shortly afterward, and a year after the first operation it was more thoroughly removed by another surgeon, and the base of the tumor frequently cauterized thereafter Some twenty applications of the actual cautery were made and from time to time sloughs separated but the treatment lapsed and again the growth gained ground The entire soft palate, the uvula, and the posterior half of the hard palate were hidden by a flattened papillomatous-looking growth split up into many lobules and obviously attached by a broad base There was no induration the general surface of the tumor was smooth, no individual lobule projecting The right tonsil seemed fuller than natural There was no nasal obstruction, and no enlarged glands to be felt about the neck An incision was made through the whole thickness of the soft palate at its junction with the hard palate, and was prolonged laterally backward to include the anterior pillars of the fauces, and the right tonsil was at the same time enucleated The boy remained free of any trouble for nine months, when Greig found a small recurrence on the right side on the mucous membrane in front of the site of the enucleated right tonsil This small recurrence was freely excised, and he has had no trouble since.

Journal of Laryngology, Rhinology and Otology, London

June, XXXII No 6

40 War Injuries and Neuroses of Otologic Interest H J Marriage—p 177
41 Cranial Osteomyelitis Following Intranasal Operation for Chronic Frontal Sinusitis N Maclay—p 186
42 Acute Middle Ear Suppuration, Mastoid Empyema Sinus Thrombosis, Purulent Leptomeningitis, Cerebellar Abscess, Operations, Death W S Syme—p 190

Journal of Tropical Medicine and Hygiene, London

July 2, XX, No 13

43 Case of Urinary Amebiasis with Cystitis E J Wright—p 145
44 Espundia (Naso Oral Leishmaniasis) in Anglo Egyptian Sudan B J Susu—p 146

Lancet, London

July 7 II No 4897

45 Concussion Injuries of Visual Apparatus in Warfare, of Central Origin S A K Wilson—p 1
46 *Skin Grafting Plea for Its More Extensive Application S R Douglas L Colebrook and A Fleming—p 5
47 *Treatment of Wounds of Knee Joint T S Novis—p 12
48 *New Physical Sign in Pneumothorax and in Pleural Effusion O K Williamson—p 13
49 *Susceptibility to Cerebrospinal Fever in Relation to Age A Compton—p 14

July 14 No 4898

50 Adaptation and Disease J G Adami—p 35
51 *Purulent Bronchitis J A B Hammond W Rolland and T H G Shore—p 41
52 *Marching Fractures Report of Six Cases A H Pirie—p 47
53 Universal Extension Splint for Gunshot Fractures of Upper Limb R Williams—p 48
54 Treatment of Recent Gunshot Wounds with Bismuth Iodoform Paraffin Paste L Colledge and H Drummond—p 49
55 *Hemoglobin Value of Blood in Surgical Shock J A Bainbridge and H B Bullen—p 51
56 Device for Insuring Spontaneous Separation of Blood Clot from Walls of Containing Vessel A D Gardner—p 51
57 Sebaceous Horn O Vevers—p 53

46 **Skin Grafting**—The authors have revived the use of Steele's grafts and introduced certain new features into both the grafting operation and the after-treatment, which aim at making the transplantation of skin a simple, reliable pro

able disturbance in both children and adults There may be the sensation of a foreign body in the throat, difficulty in swallowing, retching, and various local and remote reflex trouble, asthma, or neuralgia, but a dry insistent rebellious cough is usually the most annoying and often a misleading symptom In the case of an otherwise healthy woman of 30 with a healthy child, this inexplicable spasmodic cough was accepted as a symptom of apical tuberculosis until Turtur was consulted and found the lingual tonsil congested and enlarged Under local treatment the cough subsided This treatment is merely to paint with cocain the base of the tongue now and then Only occasionally now the cough returns at night, accompanied with a sensation of spasm of the larynx A sister of this patient presents symptoms of pluriglandular insufficiency, and the patient herself, after curetting of the uterus had profuse periodical uterine hemorrhages, suggesting disturbance in ovarian functioning In another case the lingual tonsil became enlarged soon after the cystic ovary had been removed The enlargement of the lingual tonsil was so considerable that cancer was suspected and the tonsil was removed, but no trace of malignant disease could be discovered in it Notwithstanding the extreme enlargement there was never any cough in this case The patient was a woman of 50, whose business required public speaking

93 **Inherited Ataxia**—Massalongo describes the case of a boy of 14 with extreme ataxia apparently intermediate between the Friedreich and the Marie types The other children and the parents were apparently healthy, but the mother had inherited syphilis and still gave a positive Wassermann reaction The boy also responded with a positive reaction to the Wassermann test in both blood and cerebrospinal fluid There had evidently been some anomaly in the development of the microscopic structure of some portion of the cerebrospinal axis, condemning it sooner or later to exhaustion and degeneration, hastened by toxi-infectious or other causes of injury Marie's disease and Friedreich's disease and their transitional forms are all to be regarded as effects from the compromised cerebellar system, its centers and its afferent and efferent tracts They form a group of heredofamilial, cerebellar ataxia affections Treatment as for syphilis generally comes too late

94 **Emotional Psychoneuroses**—Pighini presents evidence that a pure acute emotional psychoneurosis is accompanied in its initial phase with a state of autonomous miopragia and contemporaneous dysfunction of the sympathetic system The latter in many cases is connected with abnormal functioning of the thyroid This is manifested in some cases by symptoms suggesting exophthalmic goiter, in others by other symptoms of thyrosympathetic pathology Symptoms of hysteria may be superposed, but they rarely develop as early as the independently functioning narrowing of the caliber of the blood vessels — the autonomous miopragia

Riforma Medica, Naples

June 9, XXXIII, No 23, pp 609 628

95 Vaccine Therapy of Typhoid M Chiadini —p 609
96 Temporary Protheses after Amputations R Falcone —p 616
97 *Behavior of the Thyroid in Asphyxia R Pellegrini —p 617

97 **The Thyroid during Asphyxia**—Pellegrini has recently described the results of his study of the thyroid during asphyxia from the fumes of bromin He here describes similar research with asphyxia of mechanical origin The work was done on rabbits and dogs, and the changes in the thyroid in each group seemed to be characteristic of the type of asphyxia

Tumori, Rome

January March, V No 1, pp 1 128

98 *Alien Tumor Grafts in Developing Embryo G Acconci —p 1
99 *Proteolytic Ferments for Alien Proteins A Albanese —p 12
100 The Pathologic Anatomy and Clinical Results of Resection of the Stomach G Fichera —p 40 To be continued

98 **Transplantability of Foreign Tumor Tissue to Embryos**—Acconci has been conducting research along the lines of Murphy's work with implanted tumor tissue in chicken embryo He transplanted tissue from a rat adenocarcinoma and sarcoma, injecting a fine emulsion into the embryo still in the uterus Rabbits and guinea-pigs were the animals used, and the gravid uterus was drawn out and flushed first with a 1 per cent. solution of novocain to inhibit reaction to the tumor emulsion The latter was injected through the uterine wall directly into the ovular sac or embryo in the placental region The uterus expelled its contents before term in nearly every instance, and the results were negative for this or other reasons in all but one case so he has only one success to report This was in a rabbit fetus and the tumor thus induced reproduced faithfully the structure of the mother tumor, a sarcoma in a white mouse

99 **Proteolytic Ferments for Foreign Proteins**—Albanese tabulates the data of forty-seven series of experiments which apparently have demonstrated that, beyond question, every animal species has preformed in the blood serum certain proteolytic ferments which have a destructive action on the proteins of foreign species of animals He found them most actively destructive, in guinea-pig serum, for the proteins of rats and dogs, while they were less active for rabbit protein They were also evident in mouse and rabbit serum against rat protein, but none could be demonstrated in rat serum destructive for mouse and rabbit protein These proteolytic ferments therefore are polyvalent, capable of disintegrating proteins of various origins

Brazil-Medico, Rio de Janeiro

May 5, XXXI, No 18, pp 149 156

101 Helminths in Brazil (Contribuição para o conhecimento da fauna helminthologica Sul Fluminense) L Travassos —p 149
102 *Hair Disease in Brazil (Piedra) A Moses —p 150
103 *Loss of Entire Nose from Leishmaniosis O Torres —p 151

May 12, No 19, pp 157 166

104 General Paralysis of the Insane, Nine Cases O Clark —p 157

102 **Piedra**—Moses has been studying hairs from over fifty cases of the disease of the hairs called piedra, and compares his findings with those reported by de Almeida last year during an epidemic of 500 cases He obtained cultures from the gritty nodosities on the hairs in forty cases, and in all but two the *Trichophyton acuminatum escuro* developed, in seven cases it was associated with the vermiform colonies described by J Renoy He adds that piedra is common in Japan, and the "chignon disease" of the sixties was probably the same thing

103 **Destructive Leishmaniosis**—The illustrations of Torres' case show an elderly woman with absolutely nothing left of the nose or its bony framework The destructive process was arrested by systematic treatment with tartar emetic, after failure of all other measures The patient was 56 years of age, and of the highest social position in her town She refuses a plastic operation and wears a false nose held in place with spectacles

Prensa Medica Argentina, Buenos Aires

June 20 IV, No 2, pp 13 24

105 Total Colectomy for Chronic Ectasia G B Arana —p 13
106 Physiologic Action of Theraphosae Spider Venom B A Houssay —p 18
107 Acute Abdominal Affections R E Pasman —p 19 Conclusion
108 *Toxicity of Emetin J Guglielmetti —p 20
109 Memoirs E R Coni Continuation —p 21

108 **Toxicity of Emetin**—Guglielmetti experimented with emetin from various sources, testing them on eight different species of animals and on pigeons He tabulates the fatal dose for each by the subcutaneous, intramuscular, intravenous and intraspinal routes and by the stomach His research confirmed the special toxic action of emetin on the myocardium and central nervous system, and that this is enormously greater by the intravenous than by other modes of administration The fatal phenomena may develop without prodromal symptoms Another fact to which he calls attention is that the animal apparently surviving a single dose may succumb suddenly several days later The emetin was refound exclusively in the stomach, intestines and liver and their contents, whatever the mode of entry of the drug It disappeared from the blood in three hours after intravenous injection. Consequently, it is not necessary to tak-

the grave risk of intravenous administration as the drug reaches the digestive tract by other routes as well. Baermann and Heinemann reported in 1913 that 0.4 gm of emetin intravenously seems to be the maximal dose and they recommend 0.25 gm as the current dose. But some of the patients given this amount died about the fifteenth day, conditions thus closely resembling those in the experimental research related here. The final conclusions are that the subcutaneous is the proper route for injection of emetin hydrochlorid. He has given up to 0.15 gm in this way daily for a week without inconvenience.

Revista Clinica, Medellin, Colombia

I, No. 1, pp. 1-4[illegible]

110 *Epidural Injection in Treatment of Polyneuritis. B. Mejia.—p. 2.
111 *General Anesthesia by Rectal Injection of Ether. J. B. Montoya.—p. 23.

No. 2, pp. 4[illegible]-101

112 Nocturnal Incontinence of Urine. B. Mejia.—p. 4[illegible].
113 Sodium Cacodylate in Treatment of Syphilis. [illegible]—p. 4[illegible].
114 *Intestinal Parasites in Colombia. I. Henao and I. G. T. Villa.—p. 57.
115 Pernicious Malaria. A. Mesa.—p. 71.
116 Creosote in Amebic Dysentery. M. M. Calle.—p. 73.
117 Gangrenous Appendicitis. A. Castro.—p. 81.
118 Medical Impressions of America. J. B. Montoya.—p. [illegible]

110. Epidural Injections in Treatment of Polyneuritis.—In Mejia's first case the polyneuritis developed late in convalescence from severe typhoid. The polyneuritis persisted for two months unmodified by the usual measures but yielded to epidural injection of a 0.7 per cent. sodium chlorid solution repeated six times in the course of twelve days. Relief was apparent from the first injection but there was considerable atrophy of muscles. The second patient was likewise a robust young man. The polyneuritis developed twenty days after acute gonorrhea. The first two epidural injections commenced the twenty-fifth day of the polyneuritis did not seem to have any effect but the cure was complete after the fifth.

111. Ether by the Rectum.—Montoya reports twelve patients anesthetized with a mixture of oil and ether. The technic is simple and efficient but the irritation of the rectum is a serious drawback. Three of his twelve patients died with bloody diarrhea undoubtedly the work of the ether as the operations were on the jaw, uterus or leg. The amounts of ether used were from 100 to 150 gm with 2 ounces of oil to 4.5 ounces of ether. He did not rinse out the rectum afterward and leave *pure oil in it* as Gwathmey recommends but mentions that in four cases reported from Bogota, Gwathmey's directions were strictly followed but dysenteriform diarrhea followed also in two cases.

112. Epidural Injections for Incontinence of Urine.—Mejia relates two instances of what may be called essential enuresis occurring in children with a nervous taint. He comments on the remarkable change for the better in every way in the children when their enuresis was conquered and they felt they were like other children instead of being pariahs. They were boys of 13 and 10. One had also an irritable bladder which seemed also to be restored to normal by this reflex therapy as he calls it. He injected 10 c.c. of physiologic saline, a total of five or six injections although the desired result seemed to have been obtained with the first three.

114. Associated Helminths in Colombia.—Henao and Villa report that in the course of examination of railroad employees and townsmen, a total of 200 persons, helminths were found in large numbers: ankylostoma in 88 and 48 per cent., trichocephalus in 60 and 76 per cent., amebas in 23 and 21 per cent. and the strongylus in 16 and 9 per cent. In 23 cases the ankylostoma and the trichocephalus were associated, in 7 the ameba and the trichocephalus and other associations were common. They say that in treatment of the trichocephalus the milky juice of the fig-tree (*leche de higueron*), seems to be the only treatment that proves effectual. This helminth seems to be responsible for the majority of the cases of chronic dysenteriform colitis among children in this district. They protest against the assumption that it is better to let the ascaris go untreated than to expose to the danger of santonin poisoning. It is not uncommon in Medellin for children to pass 200 or 300 ascarids. In conclusion they remark that the total lack of medical statistics there renders it impossible to get reliable data of any epidemic [illegible] example of the typhoid epidemic of 1913. [illegible] impression that intestinal hemorrhage and [illegible] were exceptionally frequent and they query whether [illegible] may not have been responsible for this. [illegible] ton 1 in 67 and 60 per cent. of their [illegible] of 100 per [illegible] in each.

Semana Medica, Buenos Aires

[illegible] XXII [illegible]

119 [illegible]
120 [illegible]
121 [illegible]
*Tr[illegible] of the Pain with Laryngitis in the T[illegible] [illegible]
123 [illegible] in Syphilis. C. I. Mayer and A. C. [illegible] —p. [illegible] Continuation.

119. Ptosis of the Mamma.—The woman of 35 had nursed her four children but with her last two children the right breast had suppurated during lactation. The sustaining ligaments of the mammary gland had been partially destroyed by a series of abscesses and the gland and breast sagged down to below the umbilicus.

122. Treatment of Pain with Laryngitis in the Tuberculous.—Cetrangolo describes the various devices in vogue for insufflating an anesthetic powder for the throat. He prefers the Leduc tube bending up the long *end in a curve*. But for durable effect he blocks the superior laryngeal nerve with alcohol as he describes in detail. This has always proved successful in his experience. In case of *need* the *inferior* laryngeal can be blocked also.

Siglo Medico, Madrid

June 16, LXII, No. 3314, pp. 4[illegible]

124 Inefficacy of Radiotherapy in Treatment of Simple Enlarged Glands. J. and S. Ratera.—p. 4[illegible].
125 Peptic Ulcer of the Jejunum. I. Urrutia.—p. 4[illegible]. Continuation.
126 Diathermy in Gynecology. Pollacion.—p. 4[illegible]. Continuation.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

May 19, I, No. 20, pp. 16[illegible]

127 *Research on Striated Muscle Tonus and Its Innervation. II. (Spiertonus en ontherseningsstijfheid.) G. van Rijnberk.—p. 1623.
128 *Rheumatismal Aortic Valvular Disease and Myocarditis. W. Kouwenaar.—p. 1635.
129 Experimental Research on the Blood Pressure in the Vessels of the Nose. C. E. Benjamins.—p. 164[illegible].
130 *Polyserositis with Sarcoma in the Abdomen of Young Woman. P. H. Kramer.—p. 1654.

127. Innervation of Muscle Tonus.—Van Rijnberk's experiments were made on cats and they are described with illustrations. The data recorded seem to suggest that all the tonic phenomena of striped voluntary muscles entail an increase in the creatin content and thus all must depend on one and the same chemical process. This can be elicited and maintained in different cases by the mediation of different nerves, some by the autonomic nerves, in others by the nerves of voluntary control of the muscles.

128. Rheumatismal Myocarditis.—A double plate shows the findings in two cases of rheumatismal myocarditis with aneurysm of the valves causing aortic insufficiency. There were also numerous subcutaneous movable nodules scattered over the body, and similar lumps of lymphoid tissue were found in lungs, spleen and kidney as well as in the heart. Kouwenaar relates instances of similar lumps of lymphoid tissue found in various organs, including the brain, joint capsule, pia and bone. The patients were boys of 6 and 10 and the fatal acute verrucous endocarditis followed three or four months after the febrile rheumatism in the first case. The interval was over a year in the second.

130. Polyserositis with Sarcoma.—In Kramer's case the woman of 21 during the last two and a half years of her life had been tapped 198 times and a total of 1,040 liters of effusion had been withdrawn from the pleura, tapped 68 times, and the abdomen, 130 times. The sarcoma in the peritoneum was found inoperable when the physician first saw the case

Hospitalstidende, Copenhagen

June 13, LX, No 24 pp 573 596

131 Myocarditis L S Fridericia and P Møller—p 573 To be continued
132 Diverticula in Stomach and Duodenum K. Secher—p 582

Norsk Magazin for Lægevidenskaben, Christiania

June LXXVIII, No 6, pp 641 768

133 Work as a Therapeutic Factor (Om arbeidsterapien Psykana lytisl e strøtanker) J Strømme.—p 641
134 Rupture of Intestine from Contusion, Two Cases C Johannessen —p 664
135 Traumatic Rupture of the Gallbladder G Gjestland—p 674
136 *Colloids E Poulsson—p 686
137 *An Ichthyosis Family V Magnus—p 703
138 *Anaphylactic Shock after Injection of Diphtheria Antitoxin, Two Cases T Schønfelder—p 705
139 Congenital Heart Defect (*Transpositio aortae et art pulmonalis*) E Platou—p 712
140 *Optochin Amblyopia I Schiøtz—p 717

136 **Colloids**—Poulsson relates how the mystery of the colloids has been solved in recent years Instead of being separate chemical bodies, they have been found to be merely suspensions in which the size of the particles ranges merely from one-thousandth to one-millionth of a millimeter When the particles are smaller than this, we have the true solutions, as when sugar is dissolved, and when the particles are larger than this we have ordinary suspensions The particles ranging from one-thousandth to one-millionth are too small to be seen directly in the microscope, but they may show up readily, even to the naked eye, as they catch the light, as dust motes show in a sunbeam entering a darkened room Theoretically, any substance if divided into particles of this size will form a colloid in suspension in water or gas Tobacco smoke, he says, is a colloid in gas form Our atmosphere is a colloid of gas, water and dust particles One of the most interesting features of colloids is that the solid particles of this size in them are always in lively motion, the Brownian molecular movement, when suspended in enough water This molecular movement can be seen even in the small enclosed cavities in minerals opened up ages and ages after their first formation The cause of the movement is not known, but chilling arrests it Quite recent research is connecting the Brownian movement with the kinetic gas theory

The enormous surface of the hosts of minute particles in a colloid, considered together, explains the process of adsorption, and possibly also the action of ferments and enzymes, which are colloids Inorganic bodies can have a similar ferment action The resemblance between them extends even to the fact that both can be paralyzed by certain poisons, prussic acid, for instance, and both can overcome the intoxication and resume their ferment action

Living protoplasm is a colloid Most colloidal solutions can solidify as a whole, and the jelly or gel holds its shape This permits such living beings as the medusa, which consists of 95 per cent water, certain water plants consist of 98 per cent. water, and parts of the human body contain 70 per cent water The different content of finely divided solids causes the blood to be a fluid while the muscle, which contains fully as much water, is a solid mass, and likewise the kidneys which actually show a higher percentage of water than the blood The gel property of colloids is responsible for the setting of cement Tungsten transformed into a colloid form permits the brittle metal to be drawn out into delicate wires for our electric lamps Great efforts are being made now to prepare peat for fuel, as this is a colloid, the water cannot be squeezed out The whole jelly mass escapes when pressure is applied, so that to date there is no process known except the tedious drying in the air Among recent achievements in colloid chemistry is the transformation of the ill-smelling and easily decomposing whale oil into a hard white substance free from smell and absolutely durable If this discovery had been made in time, he remarks, Germany might have prepared against the fat famine she has been experiencing Salts and acids modify colloidal solutions If the colloid is sufficiently dilute, under the influence of the salt it falls out of the water This, Poulsson says, explains the delta of a river reaching tidewater If the colloid is too concentrated for this, its avidity for water is increased This is Fischer's explanation for edema, and it seems to explain the facts observed better than any other theory The water is sucked up by the colloids and thus retained in the body

The colloids which do not form gels are precipitated by electricity He says that clouds are typical specimens of these suspension colloids, and their coagulation product, rain, is induced by electricity The coagulation occurs with special haste and violence when there is much electricity in the air, as during the first drops of a thunder shower In medicine the two types of colloids are combined to make the product more stable, as in the making of collargol, for instance, albumin is utilized as a "protecting colloid"

137 **Familial Ichthyosis**—In the family described, the ichthyosis was transmitted through the two sound daughters to their three sons, and through a sound daughter in the third generation to her three sons None of the daughters of the four generations showed the affection, and the children of the sons were always free from it

138 ***Anaphylactic Phenomena after Injection of Diphtheria Antitoxin***—Schønfelder reports what he thinks are the first cases of anaphylactic disturbance that have been published in Norway In both there were restlessness, prostration and other symptoms of collapse, with urticaria in the milder case. This girl of 17 had been given 4,000 units by intramuscular injection four years after a similar injection The other child, a boy under 3, was given 4,000 units by intramuscular injection five weeks after a prophylactic injection of 500 units The collapse and other symptoms were quite alarming in this case, requiring subcutaneous injection of camphor, but there was no pronounced dyspnea, and no eruption followed The threatening symptoms subsided by the end of the third hour

140 **Optochin Amblyopia**—The history of the therapeutic use of optochin and its drawbacks is reviewed in detail by Schiøtz, who also reports a case of transient blindness in a sailor of 48 after optochin given for pneumonia Vision is considerably reduced even now, but not enough to incapacitate him for his work. He is color-blind and the visual field is much restricted and the papilla grayish There is also considerable hemeralopia *This seems to be the first case of optochin blindness reported in Norway*

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141 *Comparative Research on Leukemia in Man and Fowls. V Ellermann—p 899
142 Treatment of Scabies. (Erfaringer over Tnatbehandling med Ungv hepatis sulfuris.) M B Pedersen—p 909

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143 *Focal Reaction after Injection of Tuberculin in Lupus A L. Føns—p 941

141 **Leukemia in Man and Fowls**—Ellermann gives the clinical and necropsy findings in a case of myeloid leukemia in a man of 30 and compares them with the corresponding necropsy findings in a hen with leukemia, commenting on the remarkable parallelism between them, including the tumor formation It seems evident that infection is able to induce hyperplasia of tissue of a more or less malignant nature. It it possible, he adds, that from the etiologic standpoint we must distinguish between typical leukemia and the atypical (leukosarcomatosis) Experimental research on hen leukemia seems to offer the solution to the question whether a new etiologic factor is superposed when leukosarcomatosis develops from a typical leukemia, and tumors form It seems plausible to assume that some still unknown factor is responsible for the tumor production, but he has several times witnessed leukosarcomatosis develop in the course of typical leukemia, and is inclined to believe in their identity

143 **Focal Reaction to Tuberculin in Lupus**.—Føns expatiates on the diagnostic importance of a focal reaction to a test injection of tuberculin, as this locates the process He has been studying it since 1912 in lupus patients—104 in all He tabulates the data from 76 cases They show that 5 mg is the proper dose to induce a focal reaction If this does not induce a focal response, increasing the dose will rarely accomplish it. In seven of the seventy-six there was no reaction, and in eleven it was dubious